Expanded Coverage of the Program to Monitor Time-Area Closures in the Pacific Coast Groundfish Fishery

(Tiered from "The Program to Monitor Time-Area Closures in the Pacific Coast Groundfish Fishery" - July 2003)

Draft Environmental Assessment, Regulatory Impact Review & Regulatory Flexibility Analysis

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Abstract: This environmental assessment examines alternative Vessel Monitoring System (VMS) coverage levels for vessels that fish pursuant to the harvest guidelines, quotas, and other management measures governing the open access groundfish fishery in federal waters. To ensure the integrity of groundfish conservation areas, a pilot VMS program was implemented on January 1, 2004. The pilot program requires vessels registered to Pacific Coast groundfish fishery limited entry permits to carry and use NMFS type-approved VMS transceiver units while fishing off the coasts of Washington, Oregon and California.

Large-scale depth-based management areas, referred to as groundfish conservation areas, are used to prohibit or restrict commercial groundfish fishing. These areas were specifically designed to protect overfished species while allowing healthy fisheries to continue in areas and with gears where little incidental catch of overfished species occurs. Groundfish conservation areas are defined by points of latitude and longitude. The rockfish conservation areas, a sub-group of groundfish conservation areas, are defined by points that approximate fathom curves for depth ranges where overfished rockfish species are commonly found. It is difficult and costly to effectively enforce these large scale area closures using traditional methods, particularly when the boundaries are defined by numerous points of latitude and longitude and when management measures allow some gear types and target fishing in all or a portion of the conservation area. Scarce state and Federal resources also limit the use of traditional enforcement methods. Expanding coverage of the current VMS monitoring program to the open access fisheries is expected to enhance state and federal enforcement's ability to monitor vessel compliance with depth-based conservation areas.

March 2005

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1.0 INTRODUCTION

The groundfish fishery in the Exclusive Economic Zone (EEZ), 3 to 200 nautical miles (nm) off of the Washington-Oregon-California (WOC) coast is managed under the Pacific Coast Groundfish Fishery Management Plan (FMP). The Pacific Coast Groundfish FMP was prepared by the Pacific Fishery Management Council (Council) under the authority of the Magnuson Fishery Conservation and Management Act (subsequently amended and renamed the Magnuson-Stevens Fishery Conservation and Management Act). The Pacific Coast Groundfish FMP was approved by the Assistant Administrator for Fisheries, National Oceanic and Atmospheric Administration, on January 4, 1982 and became effective on September 30, 1982.

Actions taken to amend FMPs or to implement regulations to govern the groundfish fishery must meet the requirements of various federal laws, regulations, and executive orders. In addition to the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act), these federal laws, regulations, and executive orders include: National Environmental Policy Act (NEPA), Regulatory Flexibility Act (RFA), Endangered Species Act (ESA), Marine Mammal Protection Act (MMPA), Coastal Zone Management Act (CZMA), Paperwork Reduction Act (PRA), Executive Orders (E.O.) 12866,12898, 13132, and 13175, and the Migratory Bird Treaty Act (MBTA).

The regulations that implement NEPA requirements permit NEPA documents to be combined with other agency documents to reduce duplication (40 CFR§1506.4). NEPA, E.O. 12866 and the RFA require a description of the purpose and need for the proposed action as well as a description of alternative actions that may address the identified issue. The purpose and need for this action and general background materials are included in Section 1 of this document. Section 2 describes a reasonable range of alternative management actions that may be taken to address the identified issue. In accordance with NEPA requirements, Section 3 contains a description of the physical, biological and socio-economic characteristics of the affected environment. Section 4 examines the physical, biological and socio-economic impacts of the management options as required by NEPA, E.O. 12866 and the RFA. Section 5 addresses the consistency of the proposed actions with the FMP, Magnuson-Stevens Act, ESA, MMPA, CZMA, PRA, E.O. 12866, E.O. 13175 and the MBTA. Section 6 provides a Regulatory Impact Review, which is required by E.O. 12866 to address the economic significance of the action, and; a Regulatory Flexibility Analysis, which is required by the RFA to addresses the impacts of the proposed actions on small businesses. Section 7 presents a list of individuals who assisted in preparing the Environmental Assessment (EA) and Section 8 is the list of references. The NEPA conclusions are addressed in a memorandum that accompanies this document.

1.1 Proposed Action

The proposed action is to expand the existing Vessel Monitoring System (VMS) program into the open access sectors of the groundfish fishery. This EA examines alternative VMS coverage levels for vessels that are used to fish pursuant to the harvest guidelines, quotas, and other management measures governing the open access fishery in federal waters. With VMS coverage, vessels would be required to carry and use a mobile VMS transceiver unit, and to identify their intent to fish within a conservation area, in a manner that is consistent with federal conservation area requirements.

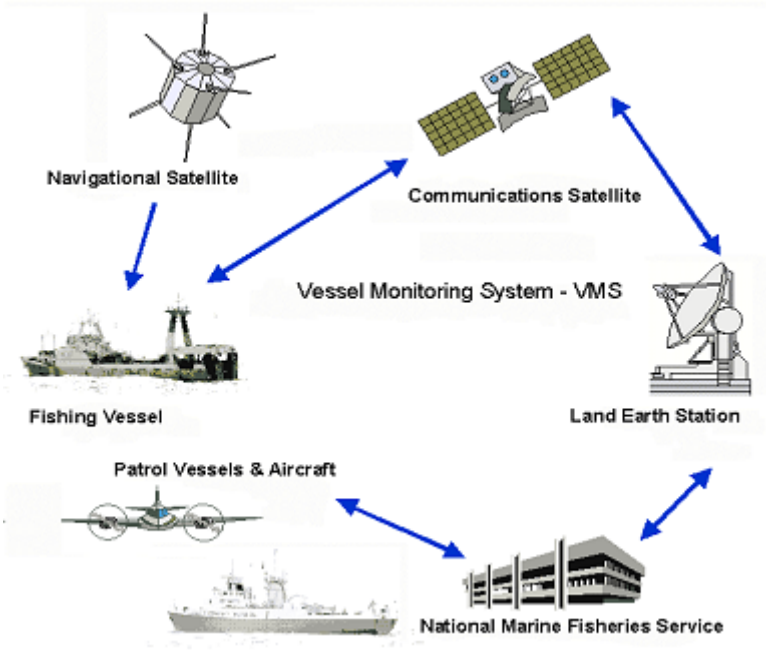

Figure 1.1. Example VMS Scenario

1.2 Background

VMS is a tool that is commonly used to monitor vessel activity in relationship to geographically defined areas. VMS transceivers are installed aboard vessels and use Global Positioning System (GPS) satellites to determine the vessel's position and to transmit that position to a communications satellite. From the communications satellite, the vessel's position is transmitted to a land-earth station operated by a communications service company. From the land-earth station, the position is transmitted to the NMFS Office for Law Enforcement (OLE) processing center. At the OLE processing center, the information is validated and analyzed before being disseminated for surveillance, enforcement purposes, and fisheries management. Figure 1.1 illustrates the flow of information through a VMS system.

VMS transceivers document a vessel's position at a specific period in time. The frequency at which position reports are sent depends on the defined need. Position transmissions can be made on a predetermined schedule, such as hourly, or upon request from the processing center. The vessel operator is unable to alter the VMS transmission signal or the time of transmission. In most cases, the vessel operator is unaware of exactly when the VMS unit is transmitting. VMS transceivers are designed to be tamper resistant.

To assure compatibility with the national monitoring center, NMFS requires that VMS systems meet defined standards (September 23, 1993, 58 FR 49285, March 31, 1994, 59 FR 151180), while recognizing the need to promulgate regulations and approve systems on a fishery-by-fishery basis. VMS transceiver units approved by NMFS are referred to as type-approved models. All type-approved models must have basic features identified and endorsed by NMFS; however, additional features may be added to better meet the needs of a particular fishery. On November 17, 2003 (68 FR 64860,) NMFS published an additional notice identifying VMS transceiver units and communication service providers that qualified as type-approved for the Pacific Coast groundfish fishery.

Amendment 13 to the Pacific Coast Groundfish FMP recognized the value of VMS as a tool for enforcing closed areas that are established to reduce bycatch of overfished species. Amendment 13 also identified VMS as a technological tool that could be used to improve bycatch management by providing fishing location data that can be used in conjunction with observer data collections.

At its November 2002 meeting, the Council recommended that NMFS, in consultation with the ad hoc VMS Committee, prepare a rule to implement a pilot VMS program for monitoring compliance with large-scale depth-based management areas. The Council's preferred alternative was for a pilot program that required all vessels registered to Pacific Coast groundfish fishery limited entry permits to carry and use a basic VMS system (a system capable of one-way communications) and to provide declaration reports prior to fishing in specific depth-based management areas with gears that would otherwise be prohibited for groundfish fishing. Based on the Council's recommendation, NMFS prepared a proposed rule for a VMS program that was published on May 22, 2003 (68 FR 27972). The proposed rule was followed by a final rule that was published on November 4, 2003 (68 FR 62374). In addition to the requirement that all

limited entry vessels carry and use VMS transceivers, any vessel registered to a limited entry permit and any other commercial or tribal vessel using trawl gear, (including exempted gear used to take pink shrimp, spot and ridgeback prawns, California halibut and sea cucumber) is required to declare their intent to fish within a conservation area specific to their gear type, in a manner consistent with conservation area requirements.

1.3 Purpose and need for action

Large-scale depth-based management areas, referred to as groundfish conservation areas (GCAs), are used to prohibit or restrict commercial and recreational groundfish fishing. The boundaries used to define the GCAs can be complex, involving hundreds of points of latitude and longitude. The Rockfish Conservation Areas (RCAs) are a sub-group of the GCAs that were specifically designed to protect overfished rockfish species in times and where they are most abundant. RCAs are defined by points of latitude and longitude that approximate fathom curves for depth ranges where overfished rockfish species are commonly found. Each RCA is gear specific, so that groundfish fishing (either directed or incidental) with gears that tend to catch particular overfished species is restricted or prohibited for being used in areas where those species are vulnerable. The RCAs are vast, cover much of the continental shelf, and extend along the entire West Coast from Canada to Mexico.

Deep-water fisheries on the slope and nearshore fisheries have been permitted in areas seaward or shoreward of the RCAs. Vessels intending to fish in the deep-water slope fisheries seaward of the westernmost boundary of an RCA are allowed to transit through the areas, providing their gear is properly stowed. Target fisheries with relatively low catch rates of overfished species, such as midwater trawling for pelagic species, and shrimp trawling with finfish excluders, have been allowed to occur in the RCAs. Various state-managed fisheries where groundfish are incidentally taken also occur in the RCA.

To ensure the integrity of the RCAs and other conservation areas, a pilot VMS program was implemented on January 1, 2004. The pilot program requires vessels registered to Pacific Coast groundfish fishery limited entry permits to carry and use VMS transceiver units while fishing off the coasts of Washington, Oregon and California. Using traditional enforcement methods (such as aerial surveillance, boarding at sea via patrol boats, landing inspections and documentary investigation) are especially difficult when the closed areas are large-scale and the lines defining the areas are irregular. Furthermore, when management measures allow some gear types and target fishing in all or a portion of the conservation area, while other fishing activities are prohibited, it is difficult and costly to effectively enforce closures using traditional methods. Scarce state and Federal resources also limit the use of traditional enforcement methods.

Expanding coverage of the current VMS monitoring program to the open access fisheries will enhance state and federal enforcement's ability to monitor vessel compliance with depth-based conservation areas. Depth-based management areas were established so that healthy fisheries could continue in areas and with gears where little incidental catch of overfished species occurs. Therefore, maintaining the integrity of conservation areas is consistent with the conservation goals and objectives of the Pacific Coast Groundfish FMP. The purpose of this Environmental Assessment (EA) is to analyze a reasonable range of VMS program coverage levels for vessels that fish pursuant to the harvest guidelines, quotas, and other management measures governing the open access fishery.

1.4 Scoping Process

The scoping process, where stakeholder input on the issue is provided, aids in determining the range of issues that the NEPA document (in this case the EA) needs to address. Scoping is intended to ensure that problems are identified early and properly reviewed, that issues of little significance do not consume time and effort, and that the draft NEPA document is thorough and balanced. The scoping process should: identify the public and agency concerns; clearly define the environmental issues and alternatives to be examined in the NEPA document, including the elimination of nonsignificant issues; identify related issues, and; identify state and local agency requirements that must be addressed. An effective scoping process can help reduce unnecessary paperwork and time delays in preparing and processing the NEPA document. This EA tiers off the original VMS EA, titled The Program to Monitor Time-Area Closures in the Pacific Coast Groundfish Fishery and therefore presents scoping activities that have occurred since September 2003.

In October 2003, the ad hoc VMS committee, which is comprised of state, federal and industry representatives, held a public meeting to consider expanding the VMS program beyond the limited entry fisheries. During this meeting, the committee discussed criteria that would be used to prioritize the expansion of the VMS program. These criteria included: the impacts on overfished species if illegal groundfish fishing occurred in an GCA; the ability of enforcement to identify fishery participants that are targeting groundfish; and the ability of enforcement to distinguish between LE vessels and other fishing vessels that look like LE vessels. Using this criteria, the committee determined that commercial vessels operating in the EEZ at any time during the year and that land groundfish should be considered for the next phase of the VMS program. The ad hoc VMS committee also recommended priorities for coverage of the different OA gear groups. Longline was given the highest priority, followed by groundfish pot, exempted trawl (excluding pink shrimp), and line (excluding salmon). The committee also considered expansion to the charter and private sectors of the recreational fishery, but determined that an area-by-area evaluation of the groundfish impacts by these participants was necessary before a final committee recommendation could be made.

At the Council's November 2003 meeting, the ad hoc VMS committee presented its report to the Council: (Exhibit D. 10b, Supplemental Attachment 2, November 2003). Following public testimony and consideration of the committee report, the Council indicated that further information on the success of the pilot phase of the program was needed before they would consider expansion into other fisheries. VMS reports were provided to the Council by OLE at its subsequent meetings.

At the Council's September 2004 meeting, NMFS presented a draft EA that contained a range of five VMS coverage alternatives for the open access fishery. These alternatives were based on the ad hoc VMS committee's October 2003 recommendation to the Council. The Council reviewed the alternatives, considered the input of its advisory bodies, and listened to public testimony, before adopting a revised range of eight alternatives for further analysis. The Council also recommended an October 1, 2005 implementation date for the expanded VMS program. To allow time for the affected public to review the alternatives, the Council delayed action on expanding the VMS program until its April 2005 Council meeting in Tacoma, Washington.

NMFS and the states held Eight public meetings, between January 10, 2005 and March 5, 2005, to provide the interested public with information regarding the current VMS systems, the expansion of the VMS program into the open access groundfish fisheries, and to provide information about how and when to provide comments to NMFS and the Council. These meetings occurred in communities with relatively high open access groundfish landings: Westport, WA; Astoria, OR; Newport, OR; Port Orford, OR; Fort Bragg, CA; Morrow Bay, CA; San Francisco, CA; and Los Alamitos, CA.

1.5 Other NEPA documents this EA relies on

This is a tiered EA that expands on information presented in the July 2003 EA, titled The Program to Monitor Time-Area Closures in the Pacific Coast Groundfish Fishery. This EA expands on the VMS program considered in the original VMS EA by considering alternative coverage levels for the open access fisheries.

This EA relies on three environmental impact statements (EIS) that have been prepared for the groundfish fishery since November 2003. Two of the EIS documents pertain to the harvest specifications and management measures and are titled: 1) Acceptable Biological Catch and Optimum Yield Specifications and Management Measures for 2004, and 2) Acceptable Biological Catch and Optimum Yield Specifications and Management Measures for 2005-2006. The third EIS, which was available as a draft EIS in February 2005, concerns Essential Fish Habitat (EFH) and is titled: The Pacific Coast Groundfish Fishery Management Plan, Essential Fish Habitat Designation and Minimization of Adverse Impacts. These three EISs have detailed descriptions of the affected environment, including: the geographical location in which the groundfish fisheries occur; various species that groundfish vessels harvest and interact with; the fish buyers and processors that are dependent on the fishery; the suppliers and services; and, ultimately the fishing-dependent communities where vessels dock and fishing families live who are dependent on these fisheries. Relevant information on the environment was summarized from these EISs for this document. In the sections where this information was summarized, readers who are interested in more detailed descriptions are encouraged to read these earlier NEPA documents.

2.0 ALTERNATIVE MANAGEMENT ACTIONS

2.1 Alternatives Previously Considered for Monitoring Time Area Closures

The July 2003 VMS EA (“A Program to Monitor Time-Area Closures in the Pacific Coast Groundfish Fishery”) was prepared prior to implementing the pilot VMS program in the limited entry fisheries. The original VMS EA examined three primary issues relevant to the development of a program for monitoring the time-area closures: 1) the monitoring system, 2) appropriate coverage levels, and 3) the payment structure. The Council considered the alternative management actions for each of these issues before making a recommendation to NMFS.

The monitoring system alternatives considered by the Council included: 1) declaration reports; 2) a basic VMS system with 1-way communications and declaration reports; 3) an upgraded VMS system with 2-way communications and declaration reports; and 4) fishery observers (1 per vessel) with declaration reports. Declaration reports allow vessels to declare their intent to fish within a GCA specific to their gear type, providing the activity is consistent with the GCA restrictions. The primary difference between the two VMS alternatives was that the upgraded two-way system could allow messages to be sent to and from the vessels, including fully compressed data messages. The basic 1-way VMS system primarily transmits positions to a shore station.

At its November 2002 meeting, the Council recommended that NMFS move forward with a rulemaking to require a basic VMS system and declaration reports. The Council indicated that it considered a basic VMS system to be adequate for maintaining the integrity of the closed areas. A basic VMS system is more costly than declaration reports, but less costly than either the upgraded VMS system or observers.

The coverage alternatives considered by the Council defined sectors of the commercial and recreational groundfish fleets that would be required to carry the recommended monitoring system (either VMS or an observer). The coverage alternatives included: 1) all vessels registered to limited entry permits; 2) all limited entry vessels that fish in the EEZ at any time during the year; 3) all active limited entry, open access, and recreational charter vessels that fish in conservation areas; and 4) all limited entry, open access, and recreational charter vessels regardless of where fishing occurs. The Council recommended that vessels registered to limited entry permits fishing in the EEZ off the Washington, Oregon, and

California coasts be required to have and use VMS transceiver units whenever they fish. In addition, the Council recommended declaration reporting requirements for any vessel registered to a limited entry permit, and any commercial or tribal vessel using trawl gear, including exempted gear used to take pink shrimp, spot and ridgeback prawns, California halibut, and sea cucumber. This level of VMS coverage would allow enforcement to effectively monitor limited entry trawl vessels for unlawful incursions into RCAs while allowing legal incursions, such as midwater trawling, for Pacific whiting, yellowtail and widow rockfish and non-groundfish target fisheries, to occur. A notable number of limited entry vessels also participate in non-groundfish fisheries, such as shrimp and prawn trawl fisheries, troll albacore and troll salmon fisheries, and the pot fisheries for crab. These fisheries would continue to be allowed to occur in the RCAs. However, vessels registered to limited entry permits would be required to have an operable VMS unit on board whenever the vessel was fishing in state or federal waters off the states of Washington, Oregon or California. This level of coverage was intended to be a pilot program that began with the sector of the fishery that is allocated the majority of the groundfish resources.

The payment structure alternatives considered by the Council defined the cost responsibilities for purchasing, installing, and maintaining the VMS transceiver units, as well as the responsibilities for transmitting reports and data. The payment structure alternatives included: 1) the vessel pays all costs associated with purchasing, installing and maintaining the VMS transceiver unit, as well as the costs associated with the transmission of reports and data; 2) the vessel pays only for the VMS transceiver and NMFS pays all other costs; 3) NMFS pays for the initial transceiver, but all other associated expenses including installation, maintenance and replacement would be paid for by the vessel; 4) and NMFS pays for everything related to VMS. Although the Council recommended that NMFS fully fund a VMS monitoring program, to date, it has not been possible because neither state nor federal funding is available for purchasing, installing, or maintaining VMS transceiver units, nor is funding available for data transmission. Because of the critical need to monitor the integrity of conservation areas that protect overfished stocks while allowing for the harvest of healthy stocks, NMFS moved forward with the rulemaking. Should funds become available in the future, NMFS is not precluded from reimbursing participants for all or a portion of the costs associated with the VMS monitoring program.

2.2 Alternatives being considered

As stated in the previous detection, this EA tiers off of the original VMS EA, titled The Program to Monitor Time-Area Closures in the Pacific Coast Groundfish Fishery. The intent of the EA is to analyze expanding the coverage of the initial VMS monitoring program to the open access fisheries to promote compliance with regulations that prohibit some fishing activities in the RCAs and other GCAs, while allowing legal fishing activity occurring within the GCAs to be effectively monitored. The purpose of this EA is to analyze a range of VMS program coverage levels for vessels fishing pursuant to the harvest guidelines, quotas, and other management measures governing the OA fishery.

The monitoring mechanism and payment structure that was implemented through the final rule published on November 4, 2003 (68 FR 62374) will not be affected by the proposed action. However, it must be noted that moving this rulemaking forward at this time will require open access fishery participants to bear the cost of purchasing, installing, and maintaining VMS transceiver units, VMS data transmissions, and reporting costs associated with declaration requirements. Neither state nor Federal funding are available at this time. If money becomes available in the future, fishery participants may be reimbursed for all or a portion of their VMS expenses.

Open access coverage alternatives

At the Council's September 2004 meeting, NMFS presented a draft EA that contained a range of five VMS coverage alternatives for the open access fishery. These alternatives were based on the ad hoc VMS committee's October 2003 recommendation to the Council. The coverage levels identified in Alternatives 2-5A are based on different combinations of the open access gear groups. In order of priority, the VMS ad hoc committee identified the need for VMS coverage for the following open access gear groups:: longline, groundfish pot, trawl (excluding shrimp), and line (excluding salmon). Alternative 2 requires all

vessels using longline gear to have and use a VMS transceiver. Each of the following Alternatives 3-5A build on the previous alternative by adding the next open access gear group in order of priority. Each of these alternatives is described in detail below.

The Council reviewed the five alternatives, considered input from its advisory bodies, and listened to public testimony, before recommending a range of eight alternatives for further analysis and an October 1, 2005 implementation date for the expanded VMS program. Alternative 5B is based on the Enforcement Consultants recommendations to the Council. This alternative is the same as 5A except that it excludes vessels in fisheries where incidental catch of overfished species is very low, however it includes salmon troll vessels. Alternative 6A, though modified by the Council, was based on the Groundfish Advisory Panel's (GAP) majority view. Under Alternative 6A, VMS would be required on any commercial fishing vessel for which an RCA restriction applied. This alternative was viewed by the GAP as a simple and straight forward way to maintain the integrity of the RCAs. Alternative 7, is the GAP minority alternative, and is basically the same as Alternative 6 except that vessels under 12 feet (ft) in length are excluded. Though this alternative specifically excluded vessels that fish only in state waters, those vessels are already excluded because there is no link to Federal authority at this time (Federal nexus).

In October 2004, the VMS ad hoc committee met and reviewed the alternatives recommended by the Council for further analysis in the EA. At this same meeting, a variation of Alternative 6A was recommended by the VMS ad hoc committee. Alternative 6B is the alternative that the VMS ad hoc Committee requested to be added to the EA for analysis. Alternative 6B is the same as alternative 6A, except that only salmon troll vessels north of 40 10 N. lat. that fish pursuant to the harvest guidelines, quotas, and other management measures governing the OA fishery for groundfish species other than yellowtail rockfish would be required to carry and use a VMS transceiver and provide declaration reports under Alternative 6B. Table 2.0.1 is a Summary of the Alternative Management Actions for Expanding Coverage of the Monitoring System for Time-area Closures in the Pacific Coast Groundfish Fishery for the Open Access Fisheries and is followed by a more detailed description of each alternative.

2.0 ALTERNATIVE MANAGEMENT ACTIONS

2.1 Alternatives Previously Considered for Monitoring Time Area Closures

The July 2003 VMS EA ("A Program to Monitor Time-Area Closures in the Pacific Coast Groundfish Fishery") was prepared prior to implementing the pilot VMS program in the limited entry fisheries. The original VMS EA examined three primary issues relevant to the development of a program for monitoring the time-area closures: 1) the monitoring system, 2) appropriate coverage levels, and 3) the payment structure. The Council considered the alternative management actions for each of these issues before making a recommendation to NMFS.

The monitoring system alternatives considered by the Council included: 1) declaration reports; 2) a basic VMS system with 1-way communications and declaration reports; 3) an upgraded VMS system with 2-way communications and declaration reports; and 4) fishery observers (1 per vessel) with declaration reports. Declaration reports allow vessels to declare their intent to fish within a GCA specific to their gear type, providing the activity is consistent with the GCA restrictions. The primary difference between the two VMS alternatives was that the upgraded two-way system could allow messages to be sent to and from the vessels, including fully compressed data messages. The basic 1-way VMS system primarily transmits positions to a shore station.

At its November 2002 meeting, the Council recommended that NMFS move forward with a rulemaking to require a basic VMS system and declaration reports. The Council indicated that it considered a basic VMS system to be adequate for maintaining the integrity of the closed areas. A basic VMS system is more costly than declaration reports, but less costly than either the upgraded VMS system or observers.

The coverage alternatives considered by the Council defined sectors of the commercial and recreational

groundfish fleets that would be required to carry the recommended monitoring system (either VMS or an observer). The coverage alternatives included: 1) all vessels registered to limited entry permits; 2) all limited entry vessels that fish in the EEZ at any time during the year; 3) all active limited entry, open access, and recreational charter vessels that fish in conservation areas; and 4) all limited entry, open access, and recreational charter vessels regardless of where fishing occurs. The Council recommended that vessels registered to limited entry permits fishing in the EEZ off the Washington, Oregon, and California coasts be required to have and use VMS transceiver units whenever they fish. In addition, the Council recommended declaration reporting requirements for any vessel registered to a limited entry permit, and any commercial or tribal vessel using trawl gear, including exempted gear used to take pink shrimp, spot and ridgeback prawns, California halibut, and sea cucumber. This level of VMS coverage would allow enforcement to effectively monitor limited entry trawl vessels for unlawful incursions into RCAs while allowing legal incursions, such as midwater trawling, for Pacific whiting, yellowtail and widow rockfish and non-groundfish target fisheries, to occur. A notable number of limited entry vessels also participate in non-groundfish fisheries, such as shrimp and prawn trawl fisheries, troll albacore and troll salmon fisheries, and the pot fisheries for crab. These fisheries would continue to be allowed to occur in the RCAs. However, vessels registered to limited entry permits would be required to have an operable VMS unit on board whenever the vessel was fishing in state or federal waters off the states of Washington, Oregon or California. This level of coverage was intended to be a pilot program that began with the sector of the fishery that is allocated the majority of the groundfish resources.

The payment structure alternatives considered by the Council defined the cost responsibilities for purchasing, installing, and maintaining the VMS transceiver units, as well as the responsibilities for transmitting reports and data. The payment structure alternatives included: 1) the vessel pays all costs associated with purchasing, installing and maintaining the VMS transceiver unit, as well as the costs associated with the transmission of reports and data; 2) the vessel pays only for the VMS transceiver and NMFS pays all other costs; 3) NMFS pays for the initial transceiver, but all other associated expenses including installation, maintenance and replacement would be paid for by the vessel; 4) and NMFS pays for everything related to VMS. Although the Council recommended that NMFS fully fund a VMS monitoring program, to date, it has not been possible because neither state nor federal funding is available for purchasing, installing, or maintaining VMS transceiver units, nor is funding available for data transmission. Because of the critical need to monitor the integrity of conservation areas that protect overfished stocks while allowing for the harvest of healthy stocks, NMFS moved forward with the rulemaking. Should funds become available in the future, NMFS is not precluded from reimbursing participants for all or a portion of the costs associated with the VMS monitoring program.

2.2 Alternatives being considered

As stated in the previous detection, this EA tiers off of the original VMS EA, titled The Program to Monitor Time-Area Closures in the Pacific Coast Groundfish Fishery. The intent of the EA is to analyze expanding the coverage of the initial VMS monitoring program to the open access fisheries to promote compliance with regulations that prohibit some fishing activities in the RCAs and other GCAs, while allowing legal fishing activity occurring within the GCAs to be effectively monitored. The purpose of this EA is to analyze a range of VMS program coverage levels for vessels fishing pursuant to the harvest guidelines, quotas, and other management measures governing the OA fishery.

The monitoring mechanism and payment structure that was implemented through the final rule published on November 4, 2003 (68 FR 62374) will not be affected by the proposed action. However, it must be noted that moving this rulemaking forward at this time will require open access fishery participants to bear the cost of purchasing, installing, and maintaining VMS transceiver units, VMS data transmissions, and reporting costs associated with declaration requirements. Neither state nor Federal funding are available at this time. If money becomes available in the future, fishery participants may be reimbursed for all or a portion of their VMS expenses.

Open access coverage alternatives

At the Council's September 2004 meeting, NMFS presented a draft EA that contained a range of five VMS coverage alternatives for the open access fishery. These alternatives were based on the ad hoc VMS committee's October 2003 recommendation to the Council. The coverage levels identified in Alternatives 2-5A are based on different combinations of the open access gear groups. In order of priority, the VMS ad hoc committee identified the need for VMS coverage for the following open access gear groups:: longline, groundfish pot, trawl (excluding shrimp), and line (excluding salmon). Alternative 2 requires all vessels using longline gear to have and use a VMS transceiver. Each of the following Alternatives 3-5A build on the previous alternative by adding the next open access gear group in order of priority. Each of these alternatives is described in detail below.

The Council reviewed the five alternatives, considered input from its advisory bodies, and listened to public testimony, before recommending a range of eight alternatives for further analysis and an October 1, 2005 implementation date for the expanded VMS program. Alternative 5B is based on the Enforcement Consultants recommendations to the Council. This alternative is the same as 5A except that it excludes vessels in fisheries where incidental catch of overfished species is very low, however it includes salmon troll vessels. Alternative 6A, though modified by the Council, was based on the Groundfish Advisory Panel's (GAP) majority view. Under Alternative 6A, VMS would be required on any commercial fishing vessel for which an RCA restriction applied. This alternative was viewed by the GAP as a simple and straight forward way to maintain the integrity of the RCAs. Alternative 7, is the GAP minority alternative, and is basically the same as Alternative 6 except that vessels under 12 feet (ft) in length are excluded. Though this alternative specifically excluded vessels that fish only in state waters, those vessels are already excluded because there is no link to Federal authority at this time (Federal nexus).

In October 2004, the VMS ad hoc committee met and reviewed the alternatives recommended by the Council for further analysis in the EA. At this same meeting, a variation of Alternative 6A was recommended by the VMS ad hoc committee. Alternative 6B is the alternative that the VMS ad hoc Committee requested to be added to the EA for analysis. Alternative 6B is the same as alternative 6A, except that only salmon troll vessels north of 40 10 N. lat. that fish pursuant to the harvest guidelines, quotas, and other management measures governing the OA fishery for groundfish species other than yellowtail rockfish would be required to carry and use a VMS transceiver and provide declaration reports under Alternative 6B. Table 2.0.1 is a Summary of the Alternative Management Actions for Expanding Coverage of the Monitoring System for Time-area Closures in the Pacific Coast Groundfish Fishery for the Open Access Fisheries and is followed by a more detailed description of each alternative.

Table 2.0.1: Summary of the Alternative Management Actions for Expanding Coverage of the Monitoring System for Time-area Closures in the Pacific Coast Groundfish Fishery for the Open Access Fisheries

VMS Coverage Alternatives	Number of Affected OA Vessels by Gear & Target Species: a/ b/	RCA Restrictions by Gear & Target Species	Overfished Species Estimated Total Mortality by Gear & Target Species
Alternative 1 – Status quo. Require declaration reports from OA exempted trawl vessels that are using allowed trawl gear to fish within a trawl RCA	Ridgeback prawn 32 vessels/yr Sea cucumber - 14 vessels/yr, 6 vessels/yr landed OA groundfish California halibut - 34 trawl vessels/yr, 17 vessels/yr landed OA groundfish: Pink shrimp - 98 vessels/yr	Pink shrimp - not subject to RCAs	Pink shrimp vessels use finfish excluders to minimize overfished species bycatch
Alternative 2 -- longline vessels. Require all vessels using longline gear in Federal waters fishing pursuant to the harvest guidelines, quotas, and other management measures governing the OA fishery to provide declaration reports and to activate and use a VMS transceiver.	c/ Groundfish directed - 131 vessels/yr used longline gear Pacific halibut - 49 vessels/yr 31 landed OA groundfish HMS - 47 vessels/yr in 2000 & 2001, 2 vessels/yr landed groundfish. HMS longline gear currently prohibited in EEZ.	Groundfish directed - non-trawl gear RCA applies to groundfish longline gear Pacific halibut - non-trawl RCA restrictions adopted under halibut regulations. HMS - Longline gear currently prohibited for HMS fishing in EEZ	Groundfish directed - bocaccio, canary, cowcod, darkblotched, lingcod, pop and yelloweye. Longline specific projections are not available. Pacific halibut - 0.5 mt of yelloweye projected for 2005. HMS- Longline gear currently prohibited in EEZ
Alternative 3 -- longline or pot vessels Require all vessels using longline or pot gear in Federal waters fishing pursuant to the harvest guidelines, quotas, and other management measures governing the OA fishery to provide declaration reports and to activate and use a VMS transceiver.	Longline - Same as Alt. 2 d/ Groundfish directed - 30 vessels/yr used pot gear Dungeness crab - 733 vessels/yr, 45 vessels/yr landed OA groundfish Prawn - 40 vessels/yr, 8 vessels/yr landed OA groundfish California sheephead (CA nearshore.) - 8 vessels/yr landed OA groundfish	Longline - Same as Alt. 2 Groundfish directed - non-trawl RCA applies to groundfish pot gear Dungeness crab, prawn, & California sheephead - non-trawl RCA restrictions apply when vessel takes and retains or possesses federally managed groundfish	Longline - Same as Alt. 2 Groundfish directed - bocaccio, canary, cowcod, darkblotched, lingcod, pop and yelloweye. Pot specific projections are not available. Dungeness crab, spot prawn & California sheephead - no overfished species catch projected for 2005 Ridgeback prawn vessels - 0.1 mt of bocaccio projected for 2005, all gear
Alternative 4 -- longline, pot, or trawl vessels, excluding pink shrimp trawl vessels. Require all vessels using longline, pot or trawl gear in Federal waters fishing pursuant to the harvest guidelines, quotas, and other management measures governing the OA fishery to provide declaration reports and to activate and use a VMS transceiver. Pink shrimp vessels are excluded.	Longline - Same as Alt. 2 Pot - Same as Alt. 3 Spot prawn- 26 vessels - gear currently prohibited Ridgeback prawn 32 vessels/yr 18 vessels/yr landed groundfish Sea cucumber - 14 vessels/yr,67 vessels/yr landed OA groundfish California halibut - 34 trawl vessels/yr, 17 vessels/yr landed OA groundfish	Longline - Same as Alt. 2 Pot - Same as Alt. 3 Ridgeback Prawn - exempted trawl RCAs south of Cape Mendocino (40°10' N. lat.) Sea cucumber, and California halibut - exempted trawl RCA south of 40°10' N. lat. Pink shrimp - not subject to RCAs	Longline gear - Same as Alt. 2 Pot gear- Same as Alt. 3 Ridgeback prawn vessels - 0.1 mt of bocaccio projected for 2005, all gear Spot prawn - gear currently prohibited Sea cucumber - no overfished species catch projected for 2005 California halibut - 0.1 mt of bocaccio, and 2.0 mt of lingcod projected for 2005, all gears

VMS COVERAGE ALTERNATIVES	Number of Affected OA Vessels by Gear & Target Species: a/ b/	RCA Restrictions by Gear & Target Species	Overfished Species Estimated Total Mortality by Gear & Target Species
Alternative 5A -- longline, pot, trawl and line gear vessels, excluding pink shrimp trawl and salmon troll vessels. Require all vessels using longline, pot, trawl, or line gear in Federal waters fishing pursuant to the harvest guidelines, quotas, and other management measures governing the OA fishery to provide declaration reports and to activate and use a VMS transceiver. Vessels using pink shrimp trawl gear are excluded. Vessels using salmon troll gear are excluded.	Longline - Same as Alt. 2 Pot - Same as Alt. 3 Trawl - Same as Alt. 4 Groundfish directed - 738 vessels/yr used line gear California halibut - 105 vessels/yr landed groundfish HMS - 221 line gear vessels/yr, 12 vessels/yr landed groundfish	Longline - Same as Alt. 2 Pot - Same as Alt. 3 Trawl - Same as Alt. 4 Groundfish directed - non-trawl RCA applies California halibut & HMS non-trawl RCA restrictions apply south of 40°10' N. lat. when vessel takes and retains or possesses federally managed groundfish	Longline - Same as Alt. 2 Pot - Same as Alt. 3 Trawl - Same as Alt. 4 Groundfish directed - bocaccio, canary, cowcod, darkblotched, lingcod, POP and yelloweye. Line gear specific projections are not available. California halibut - 0.1 mt of bocaccio, and 2.0 mt of lingcod projected for 2005, all gears HMS - no overfished species catch projected for 2005.
Alternative 5B – (Enforcement Consultants) longline, pot, trawl and line gear vessels; excluding pink shrimp trawl, HMS longline and line gear and Dungeness crab pot gear. Require all vessels using longline, pot, trawl, or line gear in Federal waters fishing pursuant to the harvest guidelines, quotas, and other management measures governing the OA fishery to provide declaration reports and to activate and use a VMS transceiver. Vessels using pink shrimp trawl gear are excluded. Vessels using gears where the incidental catch of overfished species is projected to be minimal (HMS longline and line gear and Dungeness crab pot gear) are excluded.	Longline - Same as Alt. 2, except that HMS is not included - gear is currently prohibited Pot - Same as Alt. 3, except that Dungeness crab vessels are excluded Trawl - Same as Alt. 4 Line gear - Same as Alt.5A, except 12 HMS line vessels and 2 HMS longline vessels are excluded, and 177 salmon troll vessels are included - 1,020 line vessels landed groundfish	Longline - Same as Alt. 2 Pot - Groundfish directed, prawn, & California sheephead, same as Alt. 3 Trawl - Same as Alt. 4 Line - Groundfish directed & California halibut are the same as Alt. 5A. Salmon troll - south of 40°10' the non-trawl RCA restrictions apply when vessel takes and retains or possesses federally managed groundfish; north of 40°10' , the non-trawl RCA restrictions apply when vessel takes and retains or possesses federally managed groundfish other than yellowtail rockfish	Longline - Same as Alt. 2 because no overfished species catch was projected for HMS vessels in 2005. Pot - Same as Alt. 3 because no overfished species catch was projected for Dungeness crab vessels in 2005. Trawl - Same as Alt. 4 Line gear - Same as Alt.5A, plus salmon troll vessels - 0.2 mt of bocaccio, 1.6 mt canary, 0.3 mt lingcod, 0.2 mt yelloweye was projected for HMS vessels in 2005. No overfished species catch was projected for HMS vessels in 2005
Alternative 6A – (GAP Majority with Council modifications) Any vessel engaged in commercial fishing to which a RCA restriction applies. Require all vessels engaged in a commercial fishery to which an RCA restriction applies to carry and use VMS transceivers. Vessels using salmon, Dungeness crab, CPS or HMS gear that do not take and retain groundfish are excluded. Pink shrimp vessels are excluded.	Longline - Same as Alt. 2, except that all Pacific halibut vessels are included Pot - Same as Alt. 3 Trawl - Includes all ridgeback prawn trawl 32 vessels/yr, Sea cucumber - 14 vessels, California halibut - 34 trawl vessels/yr, 23 vessels/yr landed OA groundfish Line gear -Same as Alt.5B Net gear (trammel, gillnet, setnet) - CPS - 250 vessels/yr, 3 vessels/yr landed OA groundfish. Other gears - other gears such as spear, dredge.. 4 vessels per year	Longline - Same as Alt. 2 Pot - Same as Alt. 3 Trawl - Same as Alt. 4. Line - Groundfish directed, HMS & California halibut are the same as Alt. 5A. Salmon troll - south of 40°10'; the non-trawl RCA restrictions apply when vessel takes and retains or possesses federally managed groundfish; north of 40°10' , the non-trawl RCA restrictions apply when vessel takes and retains or possesses federally managed groundfish other than yellowtail rockfish.	Longline - Same as Alt. 2 Pot - Same as Alt. 3 Trawl - Same as Alt. 4 Line gear - Same as Alt.5A, plus salmon troll vessels - 0.2 mt of bocaccio, 1.6 mt canary, 0.3 mt lingcod, 0.2 mt yelloweye was projected for HMS vessels in 2005. No overfished species catch was projected for HMS vessels in 2005 CPS - 0.3 mt of bocaccio

VMS COVERAGE ALTERNATIVES	Number of Affected OA Vessels by Gear & Target Species: a/ b/	RCA Restrictions by Gear & Target Species	Overfished Species Estimated Total Mortality by Gear & Target Species
Alternative 6B – (VMS committee) Any vessel engaged in commercial fishing to which a RCA restriction applies, except salmon troll vessels operating in waters north of 40°10' N. lat. that only retain yellowtail rockfish. Require all vessels engaged in a commercial fishery to which an RCA restriction applies to carry and use VMS transceivers. Vessels using salmon, Dungeness crab, CPS or HMS gear that do not take and retain groundfish are excluded. Salmon troll vessels operating in waters north of 40°10' N. lat. that only retain yellowtail rockfish are excluded. Pink shrimp vessels are excluded. If an RCA requirement is discontinued during the year, mandatory VMS coverage would be discontinued for the affected vessels.	Longline - Same as Alt. 2 Pot - Same as Alt. 3 Trawl - Same as Alt. 6A Line gear -Same as Alt.5B, except salmon troll vessels operating in waters north of 40°10' N. lat. that only retain yellowtail rockfish are not included. >43 but <134 vessels/yr would be excluded from coast wide value Net gear - Same as Alt. 6A Other gears -Same as Alt. 6A	Longline - Same as Alt. 2 Pot - Same as Alt. 3 Trawl - Same as Alt. 4. Line gear - Same as Alt. 6A	Longline - Same as Alt. 2 Pot - Same as Alt. 3 Trawl - Same as Alt. 4 Line gear - Same as Alt.6A, north and south specific total catch projections for salmon troll are not available.
Alternative 7 – (GAP minority with Council modifications) Any vessel engaged in commercial fishing to which a RCA restriction applies, except vessels less than 12 feet in overall length. Require all vessels >12 ft in length that fish in federal waters for which there is an RCA requirement to carry and use VMS transceivers and to provide declaration reports. Vessels using salmon, Dungeness crab, CPS, or HMS gear that do not take and retain groundfish are excluded. Pink shrimp vessels are excluded. Vessels that fish exclusively in state waters are excluded.	Same as Alt. 6A except that approximately 22 vessels/yr, each less than 12 feet in length, would be excluded. This is an average of 6 longline, 2 pot, and 14 line gear vessels/yr.	Longline - Same as Alt. 2 Pot - Same as Alt. 3 Trawl - Same as Alt. 4. Line gear - Same as Alt. 6A	Longline - Same as Alt. 2 Pot - Same as Alt. 3 Trawl - Same as Alt. 4 Line gear - Same as Alt.6A

a/ Unless other wise noted, the number of vessels is the average number of participants for the years 2000-2003.
b/ The number vessels represents those that operated in both state and/or federal waters. The data does not allow vessels that only fished in federal waters to be identified.
c/ For longline gear, directed was defined as a vessel with an exvessel value of groundfish greater than $2,500
d/ Directed groundfish pot was defined as having an exvessel value greater than 20% of all other West Coast vessel revenue

Alternative 1: Status quo. Do not specify mandatory VMS program coverage requirements for vessels used to fish pursuant to the harvest guidelines, quotas, and other management measures governing the OA fishery.

Discussion: Vessels without limited entry permits that fish pursuant to the harvest guidelines, quotas, and other management measures governing the OA fishery would not be required to carry and use VMS transceiver units. However, vessels could elect to voluntarily carry a VMS transceiver unit and provide position reports to NMFS if they choose. Vessels registered to limited entry permits that land fish in the open access sector would continue to be required to carry and use a VMS transceiver and provide declaration reports. Declaration reports would continue to be required from vessels using exempted trawl gear.

Alternative 2: longline vessels. Beginning October 1, 2005, require all vessels using longline gear that fish pursuant to the harvest guidelines, quotas, and other management measures governing the open access fishery to carry and use VMS transceiver units and provide declaration reports. Prior to leaving port on a trip in which a vessel identified under this alternative is used to take and retain, possess, or land federally managed groundfish in federal waters, the vessel would be required to activate a VMS transceiver unit and to continuously operate the unit (24 hours a day) for the remainder of the calendar year. A declaration report would be required prior to leaving port on a trip in which the vessel was used to fish in a GCA in a manner that is consistent with the requirements of the conservation area. VMS requirements defined at 660.312 and prohibitions defined at 660.306 would apply to these vessels, as would the reporting requirements defined at 660.303 for vessels fishing in conservation areas.

Discussion: Between 2000 and 2003, an average of 131 vessels per year used longline gear for directed harvest of groundfish. These vessels targeted species such as sablefish, lingcod, and rockfish. For the purpose of this analysis, directed vessels were assumed to be those longline vessels with an annual exvessel landings value of groundfish that exceeded 30 percent. The average annual groundfish exvessel revenue for open access vessels that used longline gear for directed harvest of groundfish between 2000 and 2003 was $6,331 per vessel. Between 2000 and 2003, an average of 1 vessels per year landed groundfish while using longline gear to target California halibut. The average annual groundfish longline revenue for each of these vessels was $133. An average of 31 out of 49 directed Pacific halibut vessels that fished south of Point Chehalis, WA and landed groundfish between 2000 and 2003. Longline gear is no longer allowed in federal waters off the West Coast by vessels harvesting Highly Migratory Species (HMS) species. Unless a HMS vessel possessed groundfish taken with longline gear outside the EEZ, they would not be required to have VMS.

Overfished species interactions for all open access directed groundfish gears were projected to include bocaccio, canary rockfish, cowcod, darkblotched rockfish, lingcod, POP and yelloweye rockfish. Gear specific overfished species catch projections were not available for the directed open access gears. For the California halibut fishery, overfished species projections for 2005 were combined for trawl and longline gear. The California halibut overfished species catch projections for 2005 were 0.1 mt of bocaccio and 2.0 mt of lingcod. Overfished species from the Pacific halibut fishery were projected to be 0.5 mt of yelloweye rockfish for 2005. No overfished species catch was projected for the HMS longline fishery for 2005.

Vessels would be required to operate their VMS units continuously from the point at which a vessel leaves port on a trip in which the vessel uses longline gear to fish in the open access fishery in Federal waters. The use of the term “fish” or “fishing” includes possessing federally managed groundfish in federal waters, even if the groundfish were taken and retained seaward of the EEZ or in state waters. Under this alternative, data would be available to monitor vessels using longline gear in the open access fisheries for unlawful incursions into conservation areas. Vessels must continue to operate the VMS units once the requirement is triggered; therefore, position data would be available for the vessels when they participate in other state and federal fisheries. Because of the mobility of vessels within the open access fleet to fish with alternative open access gears, some vessels, particularly directed vessels or those in fisheries where alternative gears are allowed, may change gear (such at to pot or line gear) to avoid the VMS requirements.

Alternative 3: longline or pot vessels. In addition to those vessels identified under Alternative 2, beginning October 1, 2005, require all vessels using longline or pot gear to fishing pursuant to the harvest guidelines, quotas, and other management measures governing the open access fishery to carry and use VMS transceiver units and provide declaration reports. Prior to leaving port on a trip in which a vessel identified under this alternative is used to take and retain, possess, or land federally managed groundfish in Federal waters, the vessel would be required to activate a VMS transceiver unit and to continuously operate the unit (24 hours a day) throughout the remainder of the calendar year. A declaration report would be required prior to leaving port on a trip in which the vessel is used to fish in a GCA in a manner that is consistent with the requirements of the conservation area. VMS requirements defined at 660.312 and prohibitions defined at 660.306 would apply to these vessels, as would the reporting requirements defined at 660.303 for vessels fishing in conservation areas.

Discussion: The vessels identified under this alternative are in addition to those vessels identified under Alternative 2. Between 2000 and 2003, an average of 30 vessels per year used pot gear for directed harvest of groundfish in Federal waters. Target species included sablefish, lingcod, and rockfish. For the purpose of this analysis, directed vessels were assumed to be those with an annual exvessel value of groundfish that exceeded 20% of all West Coast fisheries revenue for the vessel. The average annual groundfish exvessel revenue for these vessels for the 2000-2003 period was $8,809 per vessel. Other fisheries where pot gear is used and incidentally caught groundfish are landed are the Dungeness crab, prawn, and California sheephead (currently part of the California nearshore species management group) fisheries. On average between 2000 and 2003, 45 vessels landed open access groundfish while using pot gear to fish for Dungeness crab. The average annual exvessel revenue of groundfish landed by Dungeness crab vessels during the 2000-2003 period was $2,555 per vessel. On average between 2000 and 2003, 8 vessels landed open access groundfish while using pot gear to fish for spot and ridgeback prawns. The average annual groundfish exvessel revenue for prawn vessels during the 2000-2003 period was $1,674 per vessel. On average between 2000 and 2003, 8 vessels per year landed open access groundfish taken in pot gear by vessels also fishing for California sheephead. The average annual groundfish exvessel revenue for California sheephead vessels in the 2000-2003 period was $1,584 per vessel.

Overfished species interactions in the directed groundfish fisheries are projected to include bocaccio, canary rockfish, cowcod, darkblotched rockfish, lingcod, POP and yelloweye rockfish. Gear specific overfished species catch projections were not available for the directed open access gears. No overfished species catch was projected for the Dungeness crab or ridgeback prawn pot gear fisheries in 2005. California sheephead are caught in the nearshore fishery in California. Overfished species bycatch projections for the California nearshore fisheries were included in the direct fisheries impact estimates for 2005.

Vessels would be required to operate their VMS units continuously from the point at which a vessel leaves port on a trip in which longline or pot gear to fish in the open access fishery in Federal waters. The use of the tern “fish” or “fishing” includes possessing federally managed groundfish in Federal waters, even if the groundfish were taken and retained seaward of the EEZ or in state waters. Under this alternative, data would be available to monitor vessels using longline or pot gear in the open access fisheries for unlawful incursions into conservation areas. Vessels must continue to operate the VMS units once the requirement is triggered, therefore, position data would be available for the vessels when they participate in other state and federal fisheries. Because of the mobility of vessels within the fleet to fish with alternative open access gears, some vessels, particularly directed vessels or those in fisheries were alternative gears are allowed, may change gear (such as to line gear) to avoid the VMS requirements.

Alternative 4: longline, pot, or trawl vessels, excluding pink shrimp trawl vessels. In addition to those vessels identified under Alternatives 2 and 3, beginning on October 1, 2005, require all vessels that use longline gear, pot or trawl gear, excluding pink shrimp trawl gear fishing pursuant to the harvest guidelines, quotas, and other management measures governing the open access fishery, to carry and use VMS transceiver units and to provide declaration reports. Prior to leaving port on a trip in which a vessel identified under this alternative is used to take and retain, possess, or land federally managed groundfish in Federal waters, the vessel would be required to activate a VMS transceiver unit and to continuously operate the unit (24 hours a day) throughout the remainder of the calendar year. A declaration report

would be required prior to leaving port on a trip in which the vessel is used to fish in a GCA in a manner that is consistent with the requirements of the conservation area. VMS requirements defined at 660.312 and prohibitions defined at 660.306 would apply to these vessels, as would the reporting requirements defined at 660.303 for vessels fishing in conservation areas.

Discussion: The vessels identified under this alternative are in addition to those vessels identified under Alternative 2 and 3. The open access fisheries in which trawl gear is used are the exempted trawl fisheries for sea cucumber, California halibut, ridgeback prawns, and pink shrimp. This alternative applies to exempted trawl vessels that take and retain, possess or land groundfish taken with exempted trawl gear, except pink shrimp. On average between 2000 and 2003, 6 vessels landed open access groundfish while using trawl gear to fish for sea cucumbers. The average annual groundfish exvessel revenue of groundfish landed by sea cucumber vessels during the 2000-2003 period was $153 per vessel. On average, between 2000 and 2003, 17 vessels landed open access groundfish while using trawl gear to fish for California halibut. The average annual exvessel revenue of groundfish landed by California halibut vessels during the 2000-2003 period was $729 per vessel. On average between 2000 and 2003, 18 vessels landed open access groundfish while using trawl gear to fish for ridgeback prawns. The average annual groundfish exvessel revenue of groundfish landed by ridgeback prawn vessels during the 2000-2003 period was $740 per vessel. After 2002, Washington State prohibited the use of trawl nets for harvesting spot prawns. On February 18, 2003, the California Fish and Game Commission adopted regulations prohibiting the use of trawl nets to take spot prawn. The regulations went into effect on April 1, 2003. After 2003, Oregon prohibited the use of trawl nets for harvesting spot prawns. Pink shrimp vessels are allowed to fish within the trawl RCA providing a declaration report is sent prior to leaving port on a trip in which the vessel is used to fish within the RCA with shrimp trawl gear. In addition, state requirements include the use of approved finfish excluders for pink shrimp vessels.

No overfished species catch was projected for the sea cucumber trawl fishery for 2005. The 2005 projected overfished species catch in the ridgeback prawn trawl fishery was 0.1 mt of bocaccio. Gear specific overfished species catch projections were not available for the California halibut trawl fishery. However, the 2005 projections for all gears targeting California halibut is 0.1 mt of bocaccio and 2.0 mt of lingcod.

Vessels would be required to operate their VMS units continuously from the point at which a vessel leaves port on a trip in longline or pot gear is used to fish in the open access fishery in Federal waters. The use of the tern “fish” or “fishing” includes possessing federally managed groundfish in Federal waters, even if the groundfish were taken and retained seaward of the EEZ or in state waters. Under this alternative, data would be available to monitor vessels using longline, pot, or exempted trawl gear (except fo pink shrimp trawl) in the open access fisheries for unlawful incursions into conservation areas. Vessels must continue to operate the VMS units once the requirement is triggered; therefore, position data would be available for the vessels when they participate in other state and federal fisheries. Mobility of vessels within the fleet to fish with alternative open access gears to avoid the VMS requirements is effectively the same as alternative 3, because it is unlikely that vessels exempted trawl gears would line gear to avoid the VMS requirements.

Alternative 5A: longline, pot, trawl and line gear vessels, excluding pink shrimp trawl and salmon troll vessels. In addition to those vessels identified under Alternatives 2-4, beginning on October 1, 2005, require all vessels that use longline, pot, trawl (excluding pink shrimp trawl) or line gear (excluding salmon troll gear) to fish pursuant to the harvest guidelines, quotas, and other management measures governing the open access fishery, to carry and use VMS transceiver units and provide declaration reports. Prior to leaving port on a trip in which a vessel identified under this alternative is used to take, retain, possess, or land federally managed groundfish in Federal waters, the vessel would be required to activate a VMS transceiver unit and to continuously operate the unit (24 hours a day) throughout the remainder of the calendar year. A declaration report would be required prior to leaving port on a trip in which the vessel is used to fish in a GCA in a manner that is consistent with the requirements of the conservation area. VMS requirements defined at 660.312 and prohibitions defined at 660.306 would apply to these vessels, as would the reporting requirements defined at 660.303 for vessels fishing in conservation areas.

Discussion: The vessels identified under this alternative are in addition to those vessels identified under

Alternative 2, 3 and 4. Between 2000 and 2003, an average of 738 vessels per year used line gear to target groundfish in the open access fishery. The average annual exvessel revenue of groundfish during this period was $2,639 per vessel. Other fisheries in which line gear is used and where incidentally caught groundfish are landed are the California halibut, HMS and salmon troll vessels. On average between 2000 and 2003, less than 105 vessels landed open access groundfish while using open access line gear to fish for California halibut. The average annual groundfish exvessel revenue of groundfish landed by California Halibut vessels during the 2000-2003 period was $225 per vessel. On average between 2000 and 2003, 12 vessels landed open access groundfish while using trawl gear to fish for HMS. The average annual groundfish exvessel revenue of groundfish landed by HMS vessels during the 2000-2003 period was $969 per vessel. The salmon troll fisheries are allowed to fish within the nontrawl RCA and are allowed to retain some groundfish. Because VMS cannot be used to determine where a particular species was caught, VMS was originally considered to be an effective enforcement tool for monitoring open access trip limit compliance by salmon troll vessels.

Overfished species interactions in the directed groundfish fisheries were projected to include bocaccio, canary rockfish, cowcod, darkblotched rockfish, lingcod, POP and yelloweye rockfish. Gear specific overfished species catch projections were not available for the directed open access gears nor were gear specific overfished species catch projections available for the California halibut trawl fishery. The 2005 However, 0.1 mt of bocaccio and 2.0 mt of lingcod were projected to be taken by all gears targeting California halibut. No overfished species catch was projected for the HMS line gear fisheries for 2005.

Vessels would be required to operate their VMS units continuously from the point at which a vessel leaves port on a trip in which longline or pot gear is used to fish in the open access fishery in Federal waters. The use of the tern “fish” or “fishing” includes possessing federally managed groundfish in Federal waters, even if the groundfish were taken and retained seaward of the EEZ or in state waters. Under this alternative, data would be available to monitor vessels using longline, pot, exempted trawl gear (except for pink shrimp trawl), and line gear (except salmon troll) in the open access fisheries for unlawful incursions into conservation areas. Vessels must continue to operate the VMS units once the requirement is triggered; therefore, position data would be available for the vessels when they participate in other state and federal fisheries.

Alternative 5B: longline, pot, trawl and line gear vessels; excluding pink shrimp trawl, HMS longline and line gear and Dungeness crab pot gear. Beginning on October 1, 2005, require all vessels that use longline, pot, trawl or line gear to fish pursuant to the harvest guidelines, quotas, and other management measures governing the open access fishery, to carry and use VMS transceiver units and provide declaration reports. Vessels using pink shrimp trawl gear are excluded under this alternative. In addition, vessels using HMS longline and line gear, and Dungeness crab pot gear, gears where the incidental catch of overfished species is projected to be minimal, are excluded. Prior to leaving port on a trip in which a vessel identified under this alternative is used to take and retain, possess, or land federally managed groundfish in Federal waters, the vessel would be required to activate a VMS transceiver unit and to continuously operate the unit (24 hours a day) throughout the remainder of the calendar year. A declaration report would be required prior to leaving port on a trip in which the vessel is used to fish in a GCA in a manner that is consistent with the requirements of the conservation area. VMS requirements defined at 660.312 and prohibitions defined at 660.306 would apply to these vessels, as would the reporting requirements defined at 660.303 for vessels fishing in conservation areas.

Discussion: The vessels identified under this alternative are the same vessels as those identified under Alternative 2, 3 and 4, except that vessels using gears where the incidental catch of overfished species is projected to be minimal, are excluded. Vessels using pink shrimp trawl gear are excluded under this alternative. The gears with low incidental catch of overfished species are HMS longline and line gear, and Dungeness crab pot gear. An average of 2 vessels per year between 2000 and 2003 landed groundfish taken with longline gear while targeting HMS (currently prohibited gear in the EEZ); approximately 12 vessels per year between 2000 and 2003 landed groundfish taken with line gear while targeting HMS; and approximately 45 vessels per year between 2000 and 2003 landed groundfish taken with pot gear while targeting Dungeness crab. Under this alternative, vessels using salmon troll gear to fish pursuant to the harvest guidelines, quotas, and other management measures governing the open access fishery would also be required to carry and use VMS transceivers and provide declaration reports. Between 2000 and

2003, an average of 177 vessels per year landed groundfish taken with salmon troll gear. The annual exvessel value of groundfish taken by salmon troll vessels during this period was $173 per vessel.

Overfished species interactions in the directed groundfish fisheries were projected to include bocaccio, canary rockfish, cowcod, darkblotched rockfish, lingcod, POP and yelloweye rockfish. Gear specific overfished species catch projections were not available for the directed open access gears. Though gear specific overfished species catch projections were not available for the California halibut trawl fishery, 0.1 mt of bocaccio and 2.0 mt of lingcod were projected to be taken by all gears targeting California halibut. For 2005, salmon troll vessels were projected to take 0.2 mt of bocaccio, 1.6 mt of canary rockfish, 0.3 mt of lingcod, and 0.2 mt of yelloweye rockfish.

Vessels would be required to operate their VMS units continuously from the point at which a vessel leaves port on a trip in which the vessel uses longline or pot gear to fish in the open access fishery in Federal waters. The use of the tern "fish" or "fishing" includes possessing federally managed groundfish in Federal waters, even if the groundfish were taken and retained seaward of the EEZ or in state waters. Under this alternative, the available data would be the similar to 5A. HMS vessels are currently prohibited from using longline gear in the EEZ, data from approximately 12 vessels landing groundfish taken with line gear while targeting HMS and approximately 45 vessels landing groundfish taken with pot gear while targeting Dungeness crab would be excluded. However, data from, an average of 177 salmon troll vessels per year would be available under this alternative.

Alternative 6A: Any vessel engaged in commercial fishing to which a RCA restriction applies. Require all vessels engaged in a commercial fishery to which an RCA restriction applies to carry and use VMS transceivers and provide declaration reports. Vessels using salmon, Dungeness crab, coastal Pelagic Species (CPS) or HMS gear that do not take and retain groundfish are excluded. Pink shrimp vessels are excluded. Because there is no link to Federal authority at this time (Federal nexus), vessels that fish exclusively in state waters are excluded. Prior to leaving port on a trip in which a vessel identified under this alternative is used to take and retain, possess, or land federally managed groundfish in Federal waters, the vessel would be required to activate a VMS transceiver unit and to continuously operate the unit (24 hours a day) throughout the remainder of the calendar year. A declaration report would be required prior to leaving port on a trip in which the vessel is used to fish in a GCA in a manner that is consistent with the requirements of the conservation area. VMS requirements defined at 660.312 and prohibitions defined at 660.306 would apply to these vessels, as would the reporting requirements defined at 660.303 for vessels fishing in conservation areas.

Discussion: The vessels identified under this alternative are the same vessels as those identified under Alternative 5A, except that all vessels using longline gear to target Pacific halibut and all vessels using exempted trawl gear to target ridgeback prawns, sea cucumber, and California halibut would be included rather than only those exempted trawl vessels that take and retain, possess or land groundfish. In addition, vessels using salmon troll, net and other gears to fish pursuant to the harvest guidelines, quotas, and other management measures governing the open access fishery would be required to have and use VMS transceiver units and provide declaration reports. An average of 49 vessels per year between 2000 and 2003 fished in the directed commercial fishery for Pacific halibut south of Point Chehalis. All of these would be included under this alternative. This alternative also included all vessels using exempted trawl gear. On average between 2000 and 2003, 34 vessels per year used trawl gear to fish for California halibut, 14 vessels per year used trawl gear to fish for sea cucumbers, and 32 vessels per year used trawl gear to fish for ridgeback prawn. Like Alternative 5B, vessels using salmon troll gear to fish pursuant to the harvest guidelines, quotas, and other management measures governing the open access fishery would also be required to carry and use VMS transceivers and provide declaration reports. Between 2000 and 2003, an average of 177 vessels per year landed groundfish taken with salmon troll gear. The annual exvessel value of groundfish taken by salmon troll vessels during this period was $ 173 per vessel. Vessels landing groundfish with CPS net gear would be included under this alternative and are projected to take 0.3 mt of bocaccio rockfish. Only 3 CPS vessels to landed groundfish with a per vessel exvessel revenue of $358.

Overfished species interactions under this alternative are the same as those under alternative 5B, because overfished species were projected to be taken in the HMS longline or line gear fisheries or for the Dungeness crab pot gear fishery for 2005.

Vessels would be required to operate their VMS units continuously from the point at which a vessel leaves port on a trip in which the vessel is used to fish in the open access fishery in Federal waters with a gear for which there is an RCA restriction. The use of the tern "fish" or "fishing" includes possessing federally managed groundfish in Federal waters, even if the groundfish were taken and retained seaward of the EEZ or in state waters.

Alternative 6B: Any vessel engaged in commercial fishing to which a RCA restriction applies, except salmon troll vessels operating in waters north of 40°10' N. lat. that only retain yellowtail rockfish. Require all vessels engaged in a commercial fishery to which an RCA restriction applies to carry and use VMS transceivers and provide declaration reports. Vessels using salmon, Dungeness crab, CPS or HMS gear that do not take and retain groundfish are excluded. Salmon troll vessels operating in waters north of 40°10' N. lat. that only retain yellowtail rockfish are excluded. Pink shrimp vessels are excluded. If an RCA requirement is discontinued during the year, mandatory VMS coverage would be discontinued for the affected vessels. Because there is no link to Federal authority at this time (Federal nexus), vessels that fish exclusively in state waters are excluded. Prior to leaving port on a trip in which a vessel identified under this alternative is used to take and retain, possess, or land federally managed groundfish in Federal waters, the vessel would be required to activate a VMS transceiver unit and to continuously operate the unit (24 hours a day) throughout the remainder of the calendar year. A declaration report would be required prior to leaving port on a trip in which the vessel is used to fish in a GCA in a manner that is consistent with the requirements of the conservation area. VMS requirements defined at 660.312 and prohibitions defined at 660.306 would apply to these vessels, as would the reporting requirements defined at 660.303 for vessels fishing in conservation areas.

Discussion: The vessels identified under this alternative are the same vessels as those identified under Alternative 6A except that salmon troll vessels operating in waters north of 40°10' N. lat. that only retain yellowtail rockfish are excluded (>43, but <134 vessels). In the long term, fewer vessels may be affected than under Alternative 6A. This is because Alternative 6B includes a provision to discontinued mandatory VMS coverage for open access gear groups when the RCA requirements are discontinued.

Overfished species interactions under this alternative are similar to those under alternative 5B and 6A. However data on the overfished species impacts for salmon troll vessel are not available for north and south of 40°10' N. lat. Vessels would be required to operate their VMS units continuously from the point at which a vessel leaves port on a trip in which the vessel is used to fish in the open access fishery in Federal waters with a gear for which there is an RCA restriction. The use of the tern "fish" or "fishing" includes possessing federally managed groundfish in Federal waters, even if the groundfish were taken and retained seaward of the EEZ or in state waters. Less salmon troll data would be available for vessels fishing north 40°10' N. lat than would be available under alternatives 5B or 6A.

Alternative 7: Any vessel engaged in commercial fishing to which an RCA restriction applies, except vessels less than 12 feet in overall length. Require all vessels greater than 12 ft in length that are engaged in a commercial fishery to which an RCA restriction applies to carry and use VMS transceivers and provide declaration reports. Vessels using salmon, Dungeness crab, CPS or HMS gear that do not take and retain groundfish are excluded. Pink shrimp vessels are excluded. Vessels that fish exclusively in state waters are excluded. Prior to leaving port on a trip in which a vessel identified under this alternative is used to take and retain, possess, or land federally managed groundfish in Federal waters, the vessel would be required to activate a VMS transceiver unit and to continuously operate the unit (24 hours a day) throughout the remainder of the calendar year. A declaration report would be required prior to leaving port on a trip in which the vessel is used to fish in a GCA in a manner that is consistent with the requirements of the conservation area. VMS requirements defined at 660.312 and prohibitions defined at 660.306 would apply to these vessels, as would the reporting requirements defined at 660.303 for vessels fishing in conservation areas.

Discussion: The vessels identified under this alternative are the same vessels as those identified under Alternative 6A, except that vessels less than 12 feet in length are excluded. An average of 22 vessels per year between 2000 and 2003 landed groundfish and were less than 12 feet in length. These vessel included 6 vessels that used longline gear, 2 vessels that used pot gear, and 14 vessels that used line gear.

Overfished species interactions under this alternative are similar to those under alternative 5B and 6A. Data on the overfished species impacts for vessel under 12 feet in length are not available. Vessels would be required to operate their VMS units continuously from the point at which a vessel leaves port on a trip in which the vessel used longline or pot gear to fish in the open access fishery in Federal waters. The use of the tern "fish" or "fishing" includes possessing federally managed groundfish in Federal waters, even if the groundfish were taken and retained seaward of the EEZ or in state waters. Less data would be available from approximately 6 vessels that use longline gear, 2 vessels that use pot gear, and 14 vessels that use line gear.

Vessels would be required to operate their VMS units continuously from the point at which a vessel leaves port on a trip in which the vessel is used to fish in the open access fishery in Federal waters with a gear for which there is an RCA restriction. The use of the tern "fish" or "fishing" includes possessing federally managed groundfish in Federal waters, even if the groundfish were taken and retained seaward of the EEZ or in state waters.

2.3 Alternatives rejected from further analysis

VMS coverage of the recreational fisheries is not being considered at this time. At its October 2003 meeting, the ad hoc VMS Committee considered expansion of the VMS program, including expansion into the charter and private sectors of the recreational fishery. After considerable discussion, the committee recommended that an area-by-area evaluation of the groundfish impacts by these participants was necessary before a final recommendation could be made.

The pink shrimp fisheries have not been included in the alternatives for VMS coverage. Pink shrimp vessels are allowed to fish within the trawl RCA providing a declaration report has been sent prior to leaving port on a trip in which the vessel is used to fish within a GCA or RCA. Pink shrimp trawl vessels were excluded in the coverage alternatives, because they are required to use finfish excluders, which dramatically reduce their catch of overfished species, primarily canary rockfish. The salmon troll fisheries are allowed to fish within the nontrawl RCA and are allowed to retain some groundfish. Because VMS cannot be used to determine where a particular species was caught it is not considered to be an effective enforcement tool for monitoring open access trip limit compliance by salmon troll vessels.

State and federal fisheries in which groundfish are incidentally taken, but not landed were not included in the analysis because fisheries where groundfish catch is not landed are not considered to be open access fishery. These vessels include: the those targeting targeting HMS with purse seine gear, and those targeting the gillnet complex (California halibut, white sea bass, sharks, and white croaker) with driftnet.

3.0 AFFECTED ENVIRONMENT

The purpose of this EA is to analyze a range of alternatives for expanding the VMS program into the open access groundfish fisheries off the coasts of Washington, Oregon, and California. The affected environment includes: the geographical location in which these fisheries occur; the groundfish and other species these vessels harvest and interact with; the fish buyers and processors that are dependent on the fishery; the suppliers and services; and ultimately, and the fishing-dependent communities where vessels dock and fishing families live. The following section of this document, Section 3, describes the physical, biological, and socio-economic characteristics of the affected environment.

3.1 Physical Environment

Essential Fish Habitat (EFH) for Pacific Coast groundfish is defined as the aquatic habitat necessary to allow for groundfish production to support long-term sustainable fisheries for groundfish and for groundfish contributions to a healthy ecosystem. When these EFHs for all groundfish species are taken together, the groundfish fishery EFH includes all waters from the mean higher high water line, and the upriver extent of saltwater intrusion in river mouths seaward to the boundary of the U.S. EEZ.

This is a tiered EA that expands on information presented in the original July 2003 VMS EA titled, The Program to Monitor Time-Area Closures in the Pacific Coast Groundfish Fishery. Section 3.1, Physical Environment, of the original EA contained detailed information on the marine ecosystem. In addition, Section 3.2 of the February 2005 Draft EFH EIS titled: The Pacific Coast Groundfish Fishery Management Plan, Essential Fish Habitat Designation and Minimization of Adverse Impacts, contains further information on the physical environment. Readers who are interested in more detailed information on the physical environment are referred to the Draft EFH EIS.

3.1.1 Current Habitat Protection Areas

There are many areas off the West Coast where marine habitat is afforded some level of protection through existing regulations. These are areas that have been established by federal, state, and local agencies or other organizations. Areas may have been established to regulate navigation, restrict access (e.g., for security or fishing purposes), protect certain natural resources, regulate use, or for other purposes. These areas are known generally as marine managed areas, but are more specifically called such things as National Wildlife Refuges, National Marine Sanctuaries, fishery closure areas, State Parks, oil platform navigation safety zones, national security zones, marine protected areas, or marine reserves: There are about 321 distinct areas. Fifty nine of which may be considered marine reserves where all fishing is prohibited due either to specific fishing regulations or to access restrictions. That is, the majority of sites included in the table do not prohibit all fishing activities. Some sites may, for example, prohibit commercial fishing but allow recreational fishing; others allow fishing for some, but not all species of fish or invertebrates. Still others may only regulate fishing for one type of organism. A description of the areas is contained in Section 3.6 of the Pacific Coast Groundfish Fishery Management Plan, Essential Fish Habitat Designation and Minimization of Adverse Impacts, Draft EIS, prepared in February 2005.

3.2 Biological Environment

3.2.1 Groundfish Resources

The Pacific Coast groundfish FMP manages over 80 species, which are divided into the following groups: roundfish, flatfish, rockfish, sharks, skates, ratfish, morids, and grenadiers. These species occur throughout the EEZ and occupy diverse habitats at all stages in their life history. Information on the interactions between the various groundfish species and between groundfish and non-groundfish species varies in completeness. While a few species have been intensely studied, there is relatively little information on most groundfish species.

Each fishing year, the Council uses the best available stock assessment data to evaluate the biological condition of the Pacific Coast groundfish fishery and to develop estimates of allowable biological catch (ABC) levels for major groundfish stocks. The ABCs are biologically based estimates of the amount of

fish that may be harvested from the fishery each year without jeopardizing the stability of the resource. The ABC may be modified to incorporate biological safety factors and risk assessment due to uncertainty.

Harvest levels or optimum yields (OYs) are established for the species or species groups that the Council proposes to manage. In 2005, OYs are defined for the following groundfish species and species groups: bocaccio, black rockfish, cabezon, canary rockfish, chilipepper rockfish, cowcod, darkblotched rockfish, Dover sole, lingcod, longspine thornyhead, the minor rockfish complexes (the unassessed northern and southern nearshore, continental shelf, and continental slope rockfish species,) Pacific cod, POP, Pacific whiting, sablefish, shortbelly rockfish, shortspine thornyhead, splitnose rockfish, widow rockfish, yelloweye rockfish, and yellowtail rockfish. Numerical OYs are not set for every stock.

The Magnuson-Stevens Act requires an FMP to prevent overfishing. Overfishing is defined in the National Standards Guidelines (63 FR 24212, May 1, 1998) as exceeding the fishing mortality rate needed to produce maximum sustainable yield. The OY harvest levels are set at levels that are expected to prevent overfishing, equal to or less than the ABCs. The term “overfished” describes a stock whose abundance is below its overfished/rebuilding threshold. Overfished/rebuilding thresholds are generally linked to the same productivity assumptions that determine the ABC levels. The default value of this threshold for the groundfish FMP is 25% of the estimated unfished biomass level. In 2005, eight groundfish species continue to be designated as overfished: bocaccio (south of Monterey), canary rockfish, cowcod (south of Point Conception), darkblotched rockfish, lingcod, Pacific ocean perch, widow rockfish, and yelloweye rockfish.

This is a tiered EA that expands on information presented in the July 2003 EA titled, The Program to Monitor Time-Area Closures in the Pacific Coast Groundfish Fishery. Section 3.2, Biological Environment, of the original EA, contained detailed biological information on the groundfish resources. Readers who are interested in further information on the status of the groundfish resources are referred to Section 4.0 of the EIS, prepared by the Pacific Fishery Management Council, for the Proposed Acceptable Biological Catch and Optimum Yield Specifications and Management Measures for the 2005-2006 Pacific Coast Groundfish Fishery.

3.2.2 Endangered Species

West Coast marine species listed as endangered or threatened under the ESA include marine mammals, seabirds, sea turtles, and salmon. Under the ESA, a species is listed as "endangered" if it is in danger of extinction throughout a significant portion of its range and "threatened" if it is likely to become an endangered species within the foreseeable future throughout all, or a significant portion, of its range. Table 3.2.2.1 lists the species are subject to the conservation and management requirements of the ESA because they are listed as threatened or endangered.

Table 3.2.2.1. West Coast Endangered Species

Marine Mammals	Seabirds
Threatened: • Steller sea lion (*Eumetopias jubatus*) Eastern Stock • Guadalupe fur seal (*Arctocephalus townsendi*) • Southern sea otter (*Enhydra lutris*) California Stock	Endangered: • Short-tail albatross (*Phoebastria (=Diomedea) albatrus*) • California brown pelican (*Pelecanus occidentalis*) • California least tern (*Sterna antillarum browni*) Threatened: • Marbled murrelet (*Brachyramphs marmoratus*)
Sea Turtles	**Salmon**
Endangered: • Green turtle (*Chelonia mydas*) • Leatherback turtle (*Dermochelys coriacea*) • Olive ridly turtle (*Lepidochelys olivacea*) Threatened: • Loggerhead turtle (*Caretta caretta*)	Endangered: • Chinook salmon (*Oncorhynchus tshawytscha)* Sacramento River Winter; Upper Columbia Spring • Sockeye salmon (*Oncorhynchus nerka)* Snake River • Steelhead trout (*Oncorhynchus mykiss)* Southern California; Upper Columbia Threatened: • Coho salmon (*Oncorhynchus kisutch)* Central California, Southern Oregon, and Northern California Coasts • Chinook salmon (*Oncorhynchus tshawytscha*) Snake River Fall, Spring, and Summer; Puget Sound; Lower Columbia; Upper Willamette; Central Valley Spring; California Coastal • Chum salmon (*Oncorhynchus keta)* Hood Canal Summer; Columbia River • Sockeye salmon (*Oncorhynchus nerka)* Ozette Lake • Steelhead trout (*Oncorhynchus mykiss)* South-Central California, Central California Coast, Snake River Basin, Lower Columbia, California Central Valley, Upper Willamette, Middle Columbia, Northern California

Marine Mammals: Table 3.2.3.1 of the original VMS EA identified marine mammal communities by depth categories (nearshore, shelf and slope depth) that approximate those defined by the RCAs for three coastal regions, which included southern California, central to northern California, and Oregon to British Columbia.

Seabirds: Over sixty species of seabirds occur in waters off the West Coast within the EEZ, including: loons, grebes, albatross, fulmars, petrels, shearwaters, storm-petrels, pelicans, cormorants, frigate birds, phalaropes, skuas, jaegers, gulls, kittiwakes, skimmers, terns, guillemots, murrelets, auklets, and puffins. The migratory range of these species includes areas where open access commercial fishing occurs; commercial fishing also occurs near the breeding colonies of many of these species. Besides entanglement in fishing gear, seabirds may be indirectly affected by commercial fisheries in various ways. Change in prey availability may be linked to fishing and the discarding of fish and offal. Vessel traffic may affect seabirds when it occurs in and around important foraging and breeding habitat and increases the likelihood of bird storms. In addition, seabirds may be exposed to at-sea garbage dumping and the diesel and oil discharged into the water associated with commercial fisheries.

Sea Turtles: Sea turtles are highly migratory; four of the six species found in U.S. waters have been sighted off the West Coast. Little is known about the interactions between sea turtles and West Coast commercial fisheries. The directed fishing for sea turtles in West Coast groundfish fisheries is prohibited, because of their ESA listings, but the incidental take of sea turtles by longline or trawl gear may occur. Sea turtles are known to be taken incidentally by the California-based pelagic longline fleet and the California halibut gillnet fishery. Because of differences in gear and fishing strategies between those fisheries and the West Coast groundfish fisheries, the expected take of sea turtles by groundfish gear is minimal.

Salmon: salmon caught in the U.S. West Coast fishery have life cycle ranges that include coastal streams and river systems from central California to Alaska and oceanic waters along the U.S. and Canada seaward

into the north central Pacific Ocean, including Canadian territorial waters and the high seas. Some of the more critical portions of these ranges are the freshwater spawning grounds and migration routes. The open access groundfish fishery includes vessels that take and retain groundfish while using troll gear to target salmon.

This is a tiered EA that expands on information presented in the original July 2003 EA titled, "The Program to Monitor Time-Area Closures in the Pacific Coast Groundfish Fishery" Section 3.2.2 of the original EA, "Endangered Species" contains more detailed information on these resources.

3.2.3 Non-groundfish Species Interactions

Dungeness Crab: Dungeness crab (*Cancer magister*) are distributed from the Aleutian Islands, Alaska, to Monterey Bay, California. They live in bays, inlets, around estuaries, and on the continental shelf. Dungeness crab are found to a depth of about 180 m (98 fm). Although Dungeness crab are found on mud and gravel, it is most abundant on sandy bottoms and in eelgrass. Dungeness crab, are typically harvested using traps (crab pots), ring nets, by hand (scuba divers) or dip nets, and may be incidentally taken or harmed unintentionally by groundfish gears.

Highly Migratory Species: Highly migratory species (HMS) include tunas, billfish, dorado, and sharks. HMS species range great distances during their lifetime, extending beyond national boundaries into international waters and among the EEZs of many nations in the Pacific. In 2003, the Council adopted a Highly Migratory Species FMP (PFMC 2003) to federally regulate the take of HMS within and outside the U.S. West Coast EEZ. NMFS approved the FMP, allowing implementation, on January 30, 2004. The HMS FMP describes species proposed for active management in detail. These are five tuna species, five shark species, striped marlin, swordfish, and dorado or dolphinfish.

Pacific Pink Shrimp: Pacific pink shrimp (*Pandalus jordani*) are found from Unalaska in the Aleutian Islands to San Diego, California, at depths of 25 to 200 fm (46 to 366 m). Off the U.S. West Coast, these shrimp are harvested with trawl gear from northern Washington to central California between 60 and 100 fm (110 to 180 m). The majority of the catch is taken off the coast of Oregon. Concentrations of pink shrimp are associated with well-defined areas of green mud and muddy-sand bottom. Shrimp trawl nets are usually constructed with net mesh sizes smaller than the net mesh sizes for legal groundfish trawl gear.

Ridgeback prawn: Ridgeback prawns (*Sicyonia ingentis*) are found south of Monterey, California to Baja, California in depths of 145 feet (73 fm) to 525 feet (263 fm) (Sunada *et al.* 2001). They are more abundant south of Point Conception and are the most common invertebrate appearing in trawls. Their preferred habitat is sand, shell and green mud substrate, and they are relatively sessile. Although information about their feeding habits is limited, these prawns probably are detritus feeders. In turn, they are prey for sea robins, rockfish, and lingcod. Unlike other shrimp species, which carry their eggs during maturation, ridgeback prawns release their eggs into the water column. They spawn seasonally from June to October. Surveys recorded increasing abundance of ridgeback prawns from 1982, when surveys began, to 1985. The population then declined. More recent CPUE data suggest increased abundance in the 1990s. These changes may be due to climate phenomena, particularly El Niño events.

Pacific Halibut:. Pacific halibut (*Hippoglossus stenolepis*), in the family Pleuronectidae , range along the continental shelf in the North Pacific and Bering Sea in waters of 22 to 366 fm (40 to 200 m). They have flat, diamond-shaped bodies and may migrate long distances. Juvenile halibut, mostly shorter than the legal size limit, tend to migrate from north to south until they reach maturity. Adult halibut migrate from shallow summer feeding grounds to deeper winter spawning grounds. Most adult fish return to the same feeding grounds each summer where most commercial and recreational fishing occurs.

California Halibut: California halibut (*Paralichthys californicus*) are a left-eyed flatfish of the family Bothidae. They range from Northern Washington at approximately the Quileute River to southern Baja, California (Eschmeyer et al. 1983), but are most common south of Oregon. The center of distribution occurs south of Oregon. They predominantly associate with sand substrates from nearshore areas just beyond the surf line to about 183 m. California halibut feed on fishes and squids and can take their prey well off the bottom. They are an important sport and commercial species, especially in California where they are

targeted using hook-and-line and trawl gear.

California Sheephead: California sheephead (*Semicossyphus pulcher*) are a large member of the wrasse family Labridae. They range from Monterey Bay south to Guadalupe Island in central Baja, California and in the Gulf of California, but are uncommon north of Point Conception. They can live to 50 years of age and attain a maximum length of 91 cm (16 kg). Like some other wrasse species, California sheephead change sex starting first as a female, but changing to a male at about 30 cm in length.

Coastal Pelagic Species (CPS): CPS are schooling fish not associated with the ocean bottom, that migrate in coastal waters. These species include: northern anchovy (*Engraulis mordax*), Pacific sardine (*Sardinops sagax*), Pacific (chub) mackerel (*Scomber japonicus*), jack mackerel (*Trachurus symmetricus*) and market squid (*Loligo opalescens*). These species are managed under the Coastal Pelagic Species Fishery Management Plan. Sardines inhabit coastal subtropical and temperate waters and at times have been the most abundant fish species in the California current. During times of high abundance, Pacific sardine range from the tip of Baja California to southeastern Alaska. When abundance is low, Pacific sardine do not occur in large quantities north of Point Conception, California. Pacific (chub) mackerel range from Banderas Bay, Mexico to southeastern Alaska. They are common from Monterey Bay, California to Cabo San Lucas, Baja California, and most abundant south of Point Conception, California. The central subpopulation of northern anchovy ranges from San Francisco, California to Punta Baja, Mexico. Jack mackerel are a pelagic schooling fish that range widely throughout the northeastern Pacific, however much of their range lies outside the U.S. EEZ. Adult and juvenile market squid are distributed throughout the Alaska and California current systems, but are most abundant between Punta Eugenio, Baja California and Monterey Bay, Central California.

Stock assessments for Pacific sardine and Pacific mackerel from December 1999 and July 1999, respectively, indicate increasing relative abundance for both species. Pacific sardine biomass in U.S. waters was estimated to be 1,581,346 mt in 1999; Pacific mackerel biomass (in U.S. waters) was estimated to be 239,286 mt. Pacific sardine landings for the directed fisheries off California and Baja California, Mexico, reached the highest level in recent history during 1999, with a combined total of 115,051 mt harvested. In 1998, near-record landings of 70,799 mt of Pacific mackerel occurred for the combined directed fisheries off California and Baja California.

Population dynamics for market squid are poorly understood, and annual commercial catch varies from less than 10,000 mt to 90,000 mt. They are thought to have an annual mortality rate approaching 100%, which means the adult population is almost entirely new recruits and successful spawning is crucial to future years' abundance. Amendment 10 to the CPS FMP (January 27, 2003; 68 FR 3819) describes and analyzes several approaches for estimating an MSY proxy for market squid.

Sea Cucumber: Two sea cucumber species are targeted commercially: the California sea cucumber *(Parastichopus californicus*) and the warty sea cucumber (*P. parvimensis*) (Rogers-Bennett and Ono 2001). These species are tube-shaped Echinoderms, a phylum that also includes sea stars and sea urchins. The California sea cucumber occurs as far north as Alaska, while the warty sea cucumber is uncommon north of Point Conception and does not occur north of Monterey. Both species are found in the intertidal zone to as deep as 300 feet. These bottom-dwelling organisms feed on detritus and small organisms found in the sand and mud. Because sea cucumbers consume bottom sediment and remove food from it, they can alter the substrate in areas where they are concentrated. They can also increase turbidity as they excrete ingested sand or mud particles. Sea stars, crabs, various fishes, and sea otters prey upon them. They spawn by releasing gametes into the water column, and spawning occurs simultaneously for different segments of a population. During development, they go through several planktonic larval stages, settling to the bottom two months to three months after fertilization of the egg. Little is known about the population status of these two species; and assessment is difficult, because of their patchy distribution. However, density surveys suggest abundance has declined since the late 1980s, which is not unexpected since a commercial fishery for these species began in the late 1970s and expanded substantially after 1990.

Spot prawn: Spot prawn (*Pandalus platyceros*) are the largest of the pandalid shrimp and range from Baja, California north to the Aleutian Islands and west to the Korean Strait (Larson 2001). They inhabit rocky or hard bottoms including coral reefs, glass sponge reefs, and the edges of marine canyons. They have a

patchy distribution, which may result from active habitat selection and larval transport. Spot prawns are hermaphroditic, first maturing as males at about three years of age. They enter a transition phase after mating at about four years of age when they metamorphose into females. Spot prawns are taken by both traps and trawls on the West Coast with the fishery taking predominantly older females. Further information on the biological environment can be found in Section 3 of the Pacific Coast Groundfish Fishery Management Plan, Essential Fish Habitat Designation and Minimization of Adverse Impacts, Draft EIS, prepared in February 2005.

3.3 SOCIO-ECONOMIC ENVIRONMENT

3.3.1 Conservation Areas and Depth-Based Management.

Since 1998, groundfish management measures have been shaped by the need to rebuild overfished groundfish stocks. The 80+ species in the West Coast groundfish complex mix with each other to varying degrees throughout the year and in different portions of the water column. Some species, like Pacific whiting, are strongly aggregated, making them easier to target with relatively little bycatch of other species. Conversely, other species like canary rockfish may occur in species-specific clusters, but are also found co-occurring with a wide variety of other groundfish species.

Over the past several years, groundfish management measures have been carefully crafted to recognize the tendencies of overfished species to co-occur with healthy stocks in certain times and areas. Management measures have been specifically designed to reduce incidental interception of overfished species taken in fisheries targeting more abundant groundfish stocks. In addition to reduce overfished species catch by reducing trip limits for target species that co-occurrence with overfished species, GCAs and RCAs (large geographically defined conservation areas where fishing is restricted or prohibited to protect overfished species) areas have been used to manage the fishery.

The Council and NMFS began using closed areas to reduce fisheries impacts on overfished groundfish species in 2001. NMFS initially defined two Cowcod Conservation Areas (CCAs) in the Southern California Bight. These areas were closed to recreational and commercial fishing for groundfish. These closures were located in areas of known cowcod abundance and were intended to prevent fishing vessels from taking cowcod either directly or incidentally in fisheries targeting other species. The CCAs have remained in place since 2001 and continue to be part of the Council's long-term rebuilding strategy for cowcod.
In September 2002, NMFS introduced its first large-scale conservation area, a Darkblotched Rockfish Conservation Area (DBCA,) extending from the U.S/Canada border to Cape Mendocino, California. The DBCA extended between boundary lines approximating the 100 fm (183 m) and 250 fm (457 m) depth contours, with trawling prohibited within the conservation area. This closure was intended to reduce incidental darkblotched rockfish interception by fisheries targeting more abundant (continental) slope species.

Beginning in 2003, the Council recommended a greater suite of area closures intended to protect different overfished species from incidental harvest by vessels targeting other, more abundant species. Similar to Council efforts to craft landings limits and seasons to protect overfished species, the 2003 conservation areas were intended to protect overfished species at depths where they are most likely encountered and from gear that is most likely to encounter those species. For example, POP has historically been taken almost exclusively by trawl gear, while yelloweye rockfish is more susceptible to hook-and-line gear used in commercial and recreational fisheries. Since 2003, GCAs included the two CCAs; the Yelloweye RCA off the Washington coast that has been closed to recreational fishing; and the trawl and nontrawl RCAs. The trawl and nontrawl RCAs extended along the entire length of the West Coast and are based on ocean bottom depths. The RCAs can vary seasonally depending on when and where the overfished species targeted for protection were taken by historic fisheries. RCA boundary lines were designated by a series of latitude/longitude coordinates intended to approximate ocean bottom depth contours delineating overfished species habitats. A more in-depth discussion of the introduction of depth-based management to West Coast groundfish fisheries management is provided in the proposed rule to implement the 2003 and 2004 specifications and management measures (January 7, 2003, 68 FR 936 and January 8, 2004, 68 FR 1380.)

3.3.2 Commercial fisheries

Commercial fisheries land a larger portion, by weight, of West Coast fish than any other sector. CPS, followed by groundfish, crab, and HMS have made up the largest landings by weight since 2000. Crab, followed by groundfish, CPS, and HMS were the highest-valued fisheries between 2000 and 2003 (Table 3.3.2.1). During this same period, the gear groups with the largest amount of landings, by weight, were gill and trammel net, trawl, trap/pot, and troll gear (Table 3.3.2.2)

In 1994, NMFS implemented Amendment 6 to the groundfish FMP, a license limitation program intended to restrict vessel participation in the directed commercial groundfish fisheries off Washington, Oregon, and California. The limited entry permits that were created specified the type of gear that a permitted vessel could use in the limited entry fishery. Each limited entry permit also had an associated vessel length. Most of the Pacific Coast non-tribal commercial groundfish harvest is taken by vessels registered to limited entry permits. The groundfish limited entry program includes vessels using trawl, longline, and trap (or pot) gears.

There are also several open access fisheries that take groundfish incidentally or directly. Participants in those fisheries may use, among other gear types, longline, vertical hook-and-line, troll, pot, setnet, trammel net, shrimp and prawn trawl, California halibut trawl, and sea cucumber trawl. These vessels may target groundfish or catch them incidentally, yet they do not hold groundfish limited entry permits. Though the overall open access groundfish landings are much smaller than limited entry landings, they are part of the economic make-up of West Coast groundfish vessels.

As of August 2004, there were 406 vessels with Pacific Coast groundfish limited entry permits, of which approximately 43% were trawl only vessels, 48% were longline only vessels, 7% were trap vessels, and the remaining 2% were combinations of 2 or more gears. The number of vessels registered for use with limited entry permits has decreased since the implementation of the permit stacking program for sablefish-endorsed limited entry fixed gear permits in 2001 and the limited entry trawl vessel buyback program in late 2003.

Table 3.3.2.1. Shoreside Landings and Exvessel Revenue by Species Category and Year

		Year			
Species Group	Data type	2000	2001	2002	2003
CPS	Landed weight (lbs)	498,232,740	431,544,771	403,146,744	266,368,388
	Exvessel Revenue ($)	42,069,760	32,494,118	32,732,787	33,824,432
Crab	Landed weight (lbs)	30,562,479	26,645,343	37,156,344	75,126,504
	Exvessel Revenue ($)	64,575,735	54,017,788	62,570,332	118,393,209
Groundfish	Landed weight (lbs)	268,754,713	226,402,046	164,010,829	180,765,829
	Exvessel Revenue ($)	62,689,248	52,034,893	43,438,224	48,945,438
HMS	Landed weight (lbs)	23,217,661	27,365,996	23,269,259	38,071,415
	Exvessel Revenue ($)	22,790,849	24,253,397	17,256,645	28,126,563
Other	Landed weight (lbs)	21,579,099	19,705,423	20,890,419	16,868,699
	Exvessel Revenue ($)	27,123,067	23,982,459	23,098,380	20,616,940
Salmon	Landed weight (lbs)	7,122,757	6,458,681	9,790,983	11,493,417
	Exvessel Revenue ($)	13,962,096	10,605,885	14,345,088	20,959,564
Shellfish	Landed weight (lbs)	18,101,109	18,552,442	27,117,595	26,746,585
	Exvessel Revenue ($)	45,577,879	44,101,002	61,294,480	69,678,867
Shrimp	Landed weight (lbs)	35,906,296	40,960,953	57,818,606	32,160,356
	Exvessel Revenue ($)	20,543,414	16,753,777	21,407,954	11,479,887
Total Landed weight (lbs)		903,476,854	797,635,655	743,200,779	647,601,193
Total Exvessel Revenue ($)		299,332,048	258,243,320	276,143,890	352,024,899

Source: PacFIN ftl table. August 2004
Note: Data shown is for PFMC management areas and does not include inside waters such as Puget Sound and Columbia River.

Table 3.3.2.2. Shoreside Landings and Revenue by Gear Type and Year

		Year			
Gear	Data type	2000	2001	2002	2003
Dredge	Landed weight (lbs)			C	
	Exvessel Revenue ($)			C	
Hook and Line	Landed weight (lbs)	11,802,585	11,020,956	12,614,636	10,825,355
	Exvessel Revenue ($)	20,935,838	19,225,187	17,679,231	19,776,877
Misc	Landed weight (lbs)	35,380,715	33,635,105	42,904,188	38,561,396
	Exvessel Revenue ($)	62,944,925	58,034,808	74,019,410	79,445,478
Net	Landed weight (lbs)	502,470,237	435,111,623	406,345,771	268,877,740
	Exvessel Revenue ($)	48,226,898	36,665,962	36,382,949	36,919,258
Pot	Landed weight (lbs)	33,746,129	29,263,663	39,942,815	78,765,977
	Exvessel Revenue ($)	75,724,736	64,286,487	71,891,553	129,824,380
Troll	Landed weight (lbs)	25,541,566	28,789,324	27,054,341	45,832,676
	Exvessel Revenue ($)	29,247,312	29,245,055	25,667,562	43,931,473
Trawl	Landed weight (lbs)	259,658,663	220,003,436	157,474,652	173,261,044
	Exvessel Revenue ($)	43,868,230	36,547,531	31,428,967	33,034,613
Shrimp Trawl	Landed weight (lbs)	34,876,959	39,811,548	56,862,974	31,477,005
	Exvessel Revenue ($)	18,384,109	14,238,290	19,072,882	9,092,821
Total Landed weight (lbs)		903,476,854	797,635,655	743,199,377*	647,601,193
Total Exvessel Revenue ($)		299,332,048	258,243,320	276,142,553*	352,024,899

Source: PacFIN ftl table. August 2004
Note: Data shown is for PFMC management areas only and does not include areas such as Puget Sound and Columbia River for example.
C means data was restricted due to confidentiality
* totals do not include confidential data

3.3.3 Open Access Groundfish Fisheries

Unlike the limited entry sector, the open access fishery has unrestricted participation and is comprised of vessels targeting or incidentally catching groundfish with a large variety of nontrawl gears. Open access vessels must comply with cumulative trip limits established for the open access sector and are subject to the other operational restrictions imposed in the regulations, including the GCA and RCA restrictions. While the open access groundfish fishery is under federal management and does not have participation restrictions, some state and federally managed fisheries that land groundfish in the open access fishery have implemented their own limited entry (restricted access) fisheries or enacted management restrictions that have affected participation in groundfish fisheries. The open access fisheries are generally distributed along the coast in patterns governed by factors such as location of target species and ports with supporting marine supplies and services, and restrictions or regulations imposed by state and federal governments.

The commercial open access groundfish fishery consists of vessels that do not necessarily depend on revenue from the sale of groundfish as their a major source of income and is split between vessels targeting groundfish (*directed fishery*) and vessels targeting other species (*incidental fishery*). The incidental catch of groundfish occurs in fisheries such as prawn, shrimp, California halibut, seas cucumber, salmon, HMS, and CPS. The majority of landings by the directed groundfish fishery, by weight, occur off California, while Oregon shows the next highest landings, followed by Washington. In the incidental groundfish fisheries, Washington has the lowest groundfish landings, by weight (Hastie 2001). Combining both the directed and incidental fisheries, the commercial groundfish open access fishery is potentially very large and includes a large variety of gear types.

Open access landings and estimated exvessel values by major species groups north and south of 40˚ 10' N lat. are shown in Tables 3.3.3.1 and 3.3.3.2. When landings and revenue are measured, the open access fishery is more expansive south of 40˚ 10' N lat. Open access fishers in the south earned more per pound for

their landed groundfish catch, reflecting the more lucrative live fish markets, among other things, in that region. In 1999, only 25 percent of the groundfish was landed north of 40˚ 10' N Lat and the remaining 75 percent was landed in the southern area. The landings differential between the two regions is now less dramatic. By 2003, the open access landings were nearly equally divided between the north and the south with 48 percent of the groundfish landed north of 40˚ 10' N Lat and 52 percent was landed in the southern area.

Rockfish in the south was 57 percent of the total groundfish landings by weight in 1999 and was an important component of the overall open access groundfish landings. By 2003, rockfish in the south was only 21 percent of the total groundfish landings by weight. The overfished declarations for certain rockfish species, bocaccio and cowcod in particular, may partly explain the steep drop in landings south of 40˚ 10' N Lat. In 2003. Substantial increases in sablefish landings were observed in both regions between 1999 and 2003.

Many open access vessels predominately fish for non-groundfish species and inadvertently catch and land groundfish. In times and areas when fisheries for other species are not as profitable, some vessels will transition into the groundfish open access fishery for short periods. Table 3.3.3.3 shows the historical harvests (landings) of groundfish and non-groundfish by open access vessels. In 2003, the first complete year in which coastwide RCAs were implemented, the round weight of groundfish landed by the open access fishery increased substantially over previous years while landings of non-groundfish species decreased. This change was primarily due to increased sablefish landings (shown in Table 3.3.3.1) in recent years.

Table 3.3.3.1 Historical harvest of groundfish by species group in the open access fishery north and south of Cape Mendocino, 1999-2003

Landings north of 40° 10 ‘ N. lat. in metric tons							
Year	Lingcod	Whiting	Flatfish	Sablefish	Rockfish	Other groundfish	Total Groundfish
1999	19.0	0.2	3.9	4.1	116.1	16.4	159
2000	14.8	0.0	0.7	8.5	90.9	7.1	122
2001	17.0	0.0	1.3	21.7	125.0	15.5	180
2002	28.1	0.0	1.2	13.2	109.3	45.9	198
2003	43.8	0.1	3.7	291.7	188.2	88.5	616
Landing south of 40° 10 ‘ N. lat. in metric tons							
	Lingcod	Whiting	Flatfish	Sablefish	Rockfish	Other groundfish	Total Groundfish
1999	15.0	0.0	19.2	2.8	276.2	168.8	482
2000	7.4	0.0	17.1	6.3	159.9	142.0	333
2001	11.5	0.2	23.1	6.3	154.7	107.9	304
2002	17.0	0.0	17.5	28.2	136.1	75.2	274
2003	27.5	0.1	14.7	315.2	166.1	139.6	663

Based on Table 8-6 in DEIS, Proposed Acceptable Biological Catch and Optimum Yield Specifications and Management Measures for the 2005-2006 Pacific Coast Groundfish fishery

Table 3.3.3.2 Exvessel revenues from historical harvest of groundfish by species group in the open access fishery north and south of Cape Mendocino, 1999-2003 (revenue in thousands of current dollars)

North of 40° 10 ' N. lat.							
Year	Lingcod	Whiting	Flatfish	Sablefish	Rockfish	Other groundfish	Total Groundfish
1999	42	0	3	12	216	54	327
2000	28	0	0	29	176	32	266
2001	50	0	1	75	312	99	537
2002	82	0	1	45	321	324	772
2003	141	0	3	1,082	613	359	2,199
South of 40° 10 ' N. lat.							
	Lingcod	Whiting	Flatfish	Sablefish	Rockfish	Other groundfish	Total Groundfish
1999	46	0	49	10	1,272	835	2,212
2000	17	0	54	39	1,307	1,003	2,420
2001	38	1	69	34	1,249	628	2,018
2002	63	0	64	132	1,033	399	1,692
2003	109	0	39	937	1,072	530	2,686

Extracted from Table 8-6 in DEIS, Proposed Acceptable Biological Catch and Optimum Yield Specifications and Management Measures for the 2005-2006 Pacific Coast Groundfish fishery

Table 3.3.3.3. Historical harvests for the open access fishery, 1999-2003 (landed round weight in mt and exvessel revenue in thousands of current dollars)

Year	Groundfish round weight (mt)	Groundfish exvessel value ($)	Non-groundfish round weight (mt)	Non-groundfish exvessel value ($)	Total round weight (mt)	Total exvessel value ($)
1999	642	2,539	225,410	189,886	226,052	192,425
2000	455	2,686	277,349	191,658	277,804	194,344
2001	484	2,555	247,790	159,985	248,274	162,541
2002	472	2,463	250,954	166,343	251,426	168,807
2003	1,279	4,885	198,583	227,072	199,862	231,957

Extracted from table 8-3 DEIS, Proposed Acceptable Biological Catch and Optimum Yield Specifications and Management Measures for the 2005-2006 Pacific Coast Groundfish fishery

The open access groundfish fishery consists of many vessels that predominately fish for other non-groundfih species where they inadvertently catch and land groundfish. Because these incidental vessels do not necessarily depend on their revenue from the groundfish fishery as their major source of income, understanding the level of dependency that such participants have on the open access groundfish fishery must be considered in light of their overall fisheries revenues. Table 3.3.3.4 shows the number of open access vessels by vessel length and level of dependency on the groundfish fishery (proportion of annual revenue that is from groundfish). Table 3.3.3.5 shows the number of open access vessels by level of dependency based on gross income for all West Coast landings. Between November 2000 and October 2001, 1,287 vessels landed groundfish in the open access sector of the groundfish fishery. Of these vessels,

771 vessels (60%) had a greater than 5% dependency on the groundfish fishery with 345 of these vessels having a 95-100% level of dependency of groundfish. The open access fishery is dominated by vessels under 40 feet in length. About 78 percent of the vessels that landed open access groundfish between November 2000 and October 2001 were less than 40 feet on length. It is assumed that a portion of these smaller vessels fish exclusively in state waters, and thus would be excluded from the VMS requirements. However, the data is not available to identify the proportion of vessels that fish only in state waters. Approximately 36 percent of the open access vessels had a greater than 65 percent dependency on groundfish, with 56 percent of the most dependent vessels having less than $5,000 in gross fishing income. A greater proportion of vessels with lower levels of dependency on groundfish fell within income categories greater than $5,000. However, increases in higher valued groundfish catch in 2003 (primarily sablefish) may reduce the proportion of open access vessels in the lowest (<$5,000) income category.

Table 3.3.3.4 Number of open access vessels by level of dependency and vessel length (based on data from November 2000 - October 2001) a/

	<40'	40'-50'	50'-60'	60'-70'	70'-150'	Unspecified	Total
<5%	324	109	29	28	25	1	516
>5% &<35%	154	32	6	4	1	0	197
>35% &<65%	96	8	1	0	0	0	105
>65% &<95%	115	5	0	0	1	3	124
>95% &<100%	310	21	5	2	0	7	345

Extracted from table 6-18a DEIS, Proposed Acceptable Biological Catch and Optimum Yield Specifications and Management Measures for the 2005-2006 Pacific Coast Groundfish fishery
a/ open access vessels with more than half of their total landings value coming from groundfish are considered to be in the directed fishery

Table 3.3.3.5 Number of open access vessels by gross income levels of dependency for all West Coast landings (based on data from November 2000 - October 2001) a/

	Exvessel revenue from West Coast landings				
	<5,000	$5,000-$50,000	$50,000-$200,000	>$200,000	Total
<5%	45	268	169	34	516
>5% &<35%	52	101	44	0	197
>35% &<65%	47	50	8	0	105
>65% &<95%	63	55	6	0	124
>95% &<100%	200	138	7	0	345

Extracted from table 6-17a DEIS, Proposed Acceptable Biological Catch and Optimum Yield Specifications and Management Measures for the 2005-2006 Pacific Coast Groundfish fishery
a/ open access vessels with more than half of their total landings value coming from groundfish are considered to be in the directed fishery

Table 3.3.3.6 Historical landings of overfished species by commercial fishers prior to the implementation of RCAs and state requirements for finfish excluders on pink shrimp vessels, 1999-2001 (Extracted from table 6-14 DEIS, Proposed Acceptable Biological Catch and Optimum Yield Specifications and Management Measures for the 2005-2006 Pacific Coast Groundfish fishery)

	1999		2000		2001	
	OA landed catch (mt)	OA & LE landed catch (mt)	OA landed catch (mt)	OA & LE landed catch (mt)	OA landed catch (mt)	OA & LE landed catch (mt)
Bocaccio	Non-shrimp-22.8 Shrimp-0.2 Total-23.0	58.5 (40% OA)	Non-shrimp-5.9 Shrimp-0.0 Total- 5.9	24.6 (24% OA)	Non-shrimp-6.4 Shrimp-0.1 Total- 6.5	22.8 (3.5% OA)
Canary rockfish	Non-shrimp-56.6 Shrimp-21.3 Total- 77.9	642.2 (12% OA)	Non-shrimp-5.0 Shrimp-7.2 Total-12.2	55.8 (22% OA)	Non-shrimp-2.8 Shrimp-2.0 Total- 4.8	36.2 (13% OA)
Cowcod	Non-shrimp-2.2 Shrimp-0.2 Total- 2.4	6.5 (37% OA)	Non-shrimp-0.4 Shrimp-0.1 Total- 0.5	2.4 (21% OA)	Non-shrimp-0.0 Shrimp-0.0 Total- 0.0	0.8 (0% OA)
Darkblotched rockfish	Non-shrimp-0.1 Shrimp-2.0 Total- 2.1	284.3 (0.7% OA)	Non-shrimp-0.5 Shrimp-0.0 Total- 0.5	218.8 (0.2% OA)	Non-shrimp-0.2 Shrimp-0.0 Total- 0.2	143.1 (0.1% OA)
Lingcod	Non-shrimp-84.7 Shrimp-17.5 Total- 102.2	354.5 (29% OA)	Non-shrimp-49.0 Shrimp-9.1 Total- 58.1	143.5 (40% OA)	Non-shrimp-63.5 Shrimp-5.5 Total- 69	147.8 (47% OA)
POP	Non-shrimp-0.2 Shrimp-0.1 Total- 0.3	481.8 (0% OA)	Non-shrimp-0.0 Shrimp-0.1 Total- 0.1	140.6 (0% OA)	Non-shrimp-0.0 Shrimp-0.0 Total- 0.0	187.6 (0% OA)
Widow rockfish	Non-shrimp-41.4 Shrimp-4.6 Total- 46	3,903.5 (1% OA)	Non-shrimp-17.7 Shrimp-1.7 Total- 19.4	3,787.5 (0.5% OA)	Non-shrimp-13.0 Shrimp-0.6 Total- 13.6	1,765 (0.8% OA)
Yelloweye rockfish	Total-15.4	83.5 (18% OA)	Total- 2.9	8.95 (32% OA)	Total- 2.9	12.0 (24% OA)

Table 3.3.3.6 shows historical landings of overfished species in the open access fishery relative to all open access and limited entry catch. Table 3.3.3.6 is based on data that were collected prior to implementation of RCAs and prior to the state requirements regarding the use of finfish excluders on vessels targeting pink shrimp. Historically, most of the open access fishing activity has occurred in the nearshore and shelf areas. As a result, bocaccio, canary rockfish, lingcod, yelloweye rockfish, and cowcod have been encountered more frequently than the other overfished species. Deeper slope species such as darkblotched rockfish and POP, and pelagic shelf species such as widow rockfish, are more vulnerable to trawl gear, and have therefore been taken in smaller proportions in the open access fishery. Projected catches of overfished species in the open access sectors of the 2005 groundfish fishery are presented in Table 3.3.3.7.

As discussed above, fishery managers divide the open access sector into directed and incidental categories. The directed fishery comprises vessels targeting groundfish while the incidental fishery category applies to vessels targeting other groundfish, but landing some groundfish in the process. However, it is difficult to segregate vessels into these two categories because the choice depends on the intention of the fisher. Over the course of a year or during a single trip, a fisher may engage in different strategies and they may switch between directed and incidental fishing categories. Such changes in strategy are likely the result of a variety of factors, including the potential economic return from landing a particular mix of species.

Table 3.3.3.7 Total catch projections of overfished species in the 2005 open access fisheries. (Extracted from table2-13a DEIS, Proposed Acceptable Biological Catch and Optimum Yield Specifications and Management Measures for the 2005-2006 Pacific Coast Groundfish fishery)

	2005 bycatch projections (mt)							
	Bocaccio	Canary Rockfish	Cowcod	Darkblotched Rockfish	Lingcod	Pop	Widow	Yelloweye
Groundfish directed	10.6	1.0	0.1	0.2	70.0	0.1		0.6
California Halibut	0.1			0.0	2.0	0.0		
California Gillnet	0.5			0.0		0.0	0.0	
California Sheephead				0.0		0.0	0.0	0.0
CPS wetfish	0.3							
CPS squid								
Dungeness crab	0.0		0.0	0.0		0.0		
HMS		0.0	0.0	0.0				
Pacific Halibut	0.0		0.0	0.0		0.0	0.0	0.5
Pink Shrimp	0.1	0.5	0.0	0.0	0.0	0.0	0.1	0.1
Ridgeback prawn	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Salmon troll	0.2	1.6	0.0	0.0	0.0	0.0	0.0	0.2
Sea cucumber	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Spot prawn (trap)								
Total 2005 Projected catch	11.9	3.1	0.1	0.2	72.0	0.1	0.1	1.4

Table 3.3.3.8. Open access groundfish landings by gear group, 2000 - 2003 (based on 8/24/04 PacFin data)

Open access gear group	Number of vessels landing groundfish	Landed weight of groundfish (mt)	Exvessel revenue of groundfish ($)	Exvessel revenue per vessel ($)
Longline - all groundfish a\				
2000	399	435	1,847,800	4,627
2001	392	408	1,656,395	4,221
2002	287	349	1,268,537	4,422
2003	307	507	1,728,038	5,625
4-year average	*346*	*425*	*1,625,193*	*4,724*
Longline - groundfish directed b\				
2000	133	399	1,679,851	12,619
2001	115	367	1,466,101	12,765
2002	96	318	1,129,437	11,733
2003	113	469	1,541,727	13,610
4-year average	*114*	*388*	*1,454,279*	*12,682*
Longline - CA Halibut				
2000	4	3	24,226	6,057
2001	2	3	29,774	14,887
2002	2	1	5,352	2,676
2003	0	0	0	0
4-year average	*2*	*2*	*19,784*	*7,873*
Pot - groundfish directed c\				
2000	28	164	834,087	29,789
2001	34	145	720,680	21,196
2002	35	124	573,289	16,380
2003	41	194	763,732	18,628
4-year average	*35*	*157*	*722,947*	*21,498*
Pot - Dungeness crab				
2000	71	45	165,638	2,333
2001	63	29	124,674	1,979
2002	63	34	149,311	2,370
2003	61	39	173,518	2,845
4-year average	*65*	37	*153,285*	*2,382*
Pot - prawn/shrimp				
2000	12	1	3,973	331
2001	10	5	21,569	2,157
2002	8	1	9,869	1,234
2003	7	6	25,635	3,662
4-year average	*9*	*3*	*15,262*	*1,846*
Pot - sheephead				
2000	49	4	43,446	887
2001	40	3	30,770	769
2002	36	9	58,951	1,638
2003	22	1	14,542	661
4-year average	*37*	5	*36,927*	*989*
Trawl - sea cucumber				
2000	3	0.1	189	63
2001	10	0.8	1,649	165
2002	8	0.8	2,962	370
2003	6	0.3	650	108
4-year average	*7*	*1*	*1,363*	*177*
Trawl - CA halibut				
2000	24	22	38,697	1,612
2001	30	7	12,324	411
2002	21	6	12,961	617
2003	15	2	5,513	368
4-year average	*23*	*9*	*17,374*	752
Trawl -Ridgeback Prawn				
2000	28	11	28,468	1,017
2001	0	0	0	0
2002	0	0	0	0
2003	0	0	0	0
4-year average	--	--	--	--
Open access gear group	Number of vessels landing groundfish	Landed weight of groundfish (mt)	Exvessel revenue of groundfish ($)	Exvessel revenue per vessel ($)

Line gear - all groundfish a/				
2000	1,180	391	2,029,516	1,720
2001	1,175	418	2,136,846	1,818
2002	881	406	2,178,544	2,474
2003	641	326	1,614,643	2,521
4-year average	*969*	*385*	*1,989,887*	*2,133*
Line gear - CA halibut				
2000	< 285	10	32,419	114
2001	< 270	7	31,471	117
2002	< 250	5	31,333	125
2003	< 245	6	40,284	164
4-year average	*< 263*	*7*	*33,877*	*129*
Line gear - Salmon troll (coastwide)				
2000	304	17	37,806	124
2001	229	14	27,860	122
2002	212	10	25,336	120
2003	220	9	19,604	89
4-year average	*241*	*12*	*27,651*	115
Line gear - Salmon troll (north only)				
2000	163	11	24,280	149
2001	177	11	19,014	107
2002	152	6	13,742	90
2003	154	6	11,304	73
4-year average	*162*	*9*	*17,085*	*106*
Net gear - CPS				
2000	3	2	738	369
2001	1	0	2	1
2002	1	0	14	14
2003	3	0	52	17
4-year average	*2*	*1*	*213*	100

a/ multiple records exist for landings with HKL gear that do not have an associated vessel id. The vessel count in this case is an estimate
b/ annual revenue of $2,500 is used as a proxy for vessels that had efforts directed at groundfish
c\ if ≥20% of revenue was from groundfish, a vessel was assumed to have target groundfish at some point during the year

Open Access Directed Fisheries

Participation in the directed open access fishery segment varies between years. Participants may move into other, more profitable fisheries, or they may have taking time off from fishing, or they may quit fishing altogether. Fishers use various non-trawl gears to target particular groundfish species or species groups. Longline and hook-and-line gear are the most common open access gear types used by vessels directly targeting groundfish and is generally used to target sablefish, rockfish, and lingcod. Pot gear is used for targeting sablefish, thornyheads and rockfish. Though largely restricted from use under current regulations, in the past in Southern and Central California setnet gear was used to target rockfish, including chilipepper, widow rockfish, bocaccio, yellowtail rockfish, and olive rockfish, and to a lesser extent vermillion rockfish.

Within the directed open access fishery, fishers are further grouped into the “dead” and/or “live” fish fisheries. The terms dead and live fish fisheries refers to the state of the fish when it’s landed. The dead fish fishery has historically been the most common way to land fish. In 2001, the dead fish fishery made up 80% of the directed open access landings. However, more recently, the market value for live fish has resulted in increased landings in the live fish fishery. In 2001, 20% of fish landed (by weight, coastwide) by directed open access fishers was landed alive as compared to only 6% in 1996 (PFMC 2004).

In the live-fish fishery, groundfish are primarily caught with hook and line gear (rod-n-reel), with limited entry longline gear and with limited entry pot gear, and a variety of other hook gears (e.g. stick gear). The fish are kept alive in a seawater tank on board the vessel. California halibut and rockfish taken in gill and trammel nets have increasingly appeared in the live fish fishery (CDFG 2001). Live fish are sold at a premium price to food fish markets and restaurants, primarily in Asian communities in California. Only limited information exists on the distribution of effort by open access vessels. Because the open access sector has an increasingly large live-fish fishery component with nearshore species making up most of the live fish landings, effort located near shore likely accounts for most live fish landings.

In California, hook and line gear for the live-fish fishery has been limited, since 1995, to a maximum of 150 hooks per vessel and 15 hooks per line within one mile of the mainline shore (CDFG 2001). Traps are limited to 50 per fisherman. In Washington, it is illegal to possess live bottom fish taken under a commercial fishing license. In Oregon, nearshore rockfish and species such as cabezon and greenling are the primary target of the live fish fishery. Sablefish and rockfish are also landed alive in Oregon, and are managed under limits which count against the federally set limited-entry allocations. The Oregon live fish fishery occurs in waters of ten fathoms or less (18 m). Only legal gears are allowed to be used to catch nearshore live fish. In early 2002, an Oregon Development Fisheries Permit was required for fishermen landing live fish species (e.g. Cabezon, greenling (except kelp greenling), brown, gopher, copper, black and yellow, kelp, vermilion, and grass rockfish (among others), buffalo sculpin, Irish lords, and many surfperch species). However, commercial fishing for food fish is prohibited in Oregon bays and estuaries and within 600 feet (183 m) seaward of any jetty.

Open Access Incidental Fisheries Many fishers catch groundfish incidentally when targeting other species, because of the kind of gear they use and the co-occurrence of target and groundfish species in a given area. Managers classify vessels as being in the open access incidental fishery if groundfish comprises 50% or less of their landings, measured by dollar value. These incidental open access fisheries may also account for substantial amounts of bycatch, especially for overfished groundfish species. Fisheries targeting pink shrimp, spot prawn, ridgeback prawn, California and Pacific halibut, Dungeness crab, salmon, sea cucumber, coastal pelagic species, California sheephead (California nearshore fishery), highly migratory species, and the mix of species caught in net fisheries comprise this incidental segment of the open access sector. These fisheries and associated target species are described below.

Dungeness Crab Fishery

The states of Oregon and California, and Washington in cooperation with the Washington Coast treaty tribes manage the Dungeness crab fishery. The Pacific States Marine Fisheries Commission (PSMFC) provides inter-state coordination. The Dungeness crab fishery is divided between treaty sectors, covering catches by Indian Tribes, and a non-treaty sector. This fishery is managed on the basis of simple "3-S" principles: sex, season, and size. The commercial fishery may retain only male crabs (thus protecting the reproductive potential of the populations); the fishery has open and closed seasons; and the commercial fishery must comply with a minimum size limit on male crabs.

Washington manages the Dungeness fishery with a limited entry system with two tiers of pot limits and a season from December 1 through September 15. In Oregon, 306 vessels made landings in 1999. The Oregon season generally starts on December 1. In California, distinct fisheries occur in Northern and Central California, with the northern fishery covering a larger area. California implemented a limited entry program in 1995, and as of March 2000 about 600 California residents and 70 non-residents hold limited entry permits. Nonetheless, effort has increased with the entry of larger multipurpose vessels from other fisheries. Landings have not declined. The effort increase has resulted in a "race for fish" with more than 80% of total landings made during the month of December.

Both personal use fishers and commercial fishers target Dungeness crab. At the commercial level, the Dungeness crab fishery generated $67 to $130 million in exvessel revenue (Table 3.3.3.9); in recent years (2002 and 2003) the amount of exvessel revenue generated by the fishery has been increasing due in part to increases in stock biomass. For many vessels, the Dungeness crab fishery has been the fishery with the largest exvessel revenues.

The majority of Dungeness crab fishing effort and catch occurs during the months of December and January. Many types of vessels participate in this fishery including vessels that may otherwise be limited entry groundfish trawlers and fixed gear vessels, as well as other types of vessels.

The Dungeness crab fishery tends to occur in areas nearer to shore than the limited entry trawl and fixed gear fisheries. To avoid gear interactions with the Dungeness crab fishery, a conscious effort has been made to allow groundfish trawl vessels access to waters deeper than 60 fathoms during winter months. All three states are comparable in terms of landed weight and revenue in coastal management areas, and Washington has an additional component in Puget Sound that is substantial. Washington had the highest landings recent years for coastal Dungeness crab, followed closely by Oregon and California. The ports with

highest landings are distributed among the three states (Table 3.3.3.10).

Table 3.3.3.9. Landings and Exvessel Revenue of Dungeness Crab by Area, State, and Year (2000 - 2003)

			YEAR			
Area	State	Data type	2000	2001	2002	2003
Coastal Management Areas	CA	Landed weight (lbs)	6,482,913	3,546,106	7,297,676	22,196,754
		Exvessel revenue ($)	13,751,700	9,009,756	13,458,089	35,270,665
	OR	Landed weight (lbs)	11,180,845	9,689,804	12,442,612	23,480,735
		Exvessel revenue ($)	23,710,261	19,291,484	20,759,342	36,399,904
	WA	Landed weight (lbs)	11,700,416	12,049,827	16,101,625	28,191,992
		Exvessel revenue ($)	25,609,842	24,003,463	26,707,196	45,129,820
Other Management Areas	CA	Landed weight (lbs)				C
		Exvessel revenue ($)				C
	WA	Landed weight (lbs)	6,732,220	7,522,403	6,944,948	6,941,032
		Exvessel revenue ($)	14,084,886	14,752,254	13,548,402	13,259,518
Total Landed weight (lbs)			36,096,394	32,808,140	42,786,861	80,810,513*
Total Exvessel revenue ($)			77,156,690	67,056,957	130,059,907	130,071,468*

Source: PacFIN ftl table. August 2004
Note: C represents data restricted due to confidentiality
"Other management areas" includes inside waters such as Puget Sound and Columbia River
* totals do not include confidential data

Table 3.3.3.10. Top 15 Ports for Dungeness Crab Landings and Revenue (2000 - 2003)

Rank	Top Ports for Dungeness Crab by Weight	Top Ports for Dungeness Crab by Value
1	WESTPORT	WESTPORT
2	ASTORIA	ASTORIA
3	CRESCENT CITY	CRESCENT CITY
4	NEWPORT	NEWPORT
5	BELLINGHAM BAY	BELLINGHAM BAY
6	CHARLESTON (COOS BAY)	CHARLESTON (COOS BAY)
7	EUREKA	EUREKA
8	BROOKINGS	BLAINE
9	BLAINE	BROOKINGS
10	ILWACO	SAN FRANCISCO
11	SAN FRANCISCO	LACONNER
12	CHINOOK	ILWACO
13	LACONNER	CHINOOK
14	TAHOLAH	TAHOLAH
15	ANACORTES	PRINCETON / HALF MOON BAY

Source: PacFIN FTL table. July 2004

Highly Migratory Species Fisheries

HMS fishery management unit includes five tuna species, five shark species, striped marlin, swordfish, and dorado. Complex management of HMS fisheries results from the multiple management jurisdictions, users, and gear types targeting these species, and from the oceanic regimes that play a major role in determining species availability and which species will be harvested off the U.S. West Coast in a given year.

Albacore tuna account for a large majority of the landed weight and value (Table 3.3.3.11). NMFS will monitor the numerous species caught by the HMS fishery, but which are not part of the fishery management unit. Commercial fishers use five distinctive gear types used to harvest HMS: hook-and-line, driftnet, pelagic longline, purse seine, and harpoon (Table 3.3.3.12). While hook-and-line gear catches many HMS species, traditionally it has been used to harvest tunas. The principal target species for hook-and-line fisheries include albacore and other tunas, swordfish and other billfish, several shark species, and dorado. Albacore make up the highest hook and line landings, with the majority taken by troll and jig-and-bait gear (92% in 1999). Gillnet, drift longline, and other gear take a small portion of fish. These gear types vary in the incidence of groundfish interception depending on the area fished and time of year. Overall, nearly half of the total coastwide landings of albacore, by weight, were landed in

California.
Fishers use pelagic longline to target swordfish, shark and tunas; drift gillnet gear to target swordfish, tunas, and sharks off California and Oregon; purse seine gear to target tuna off California and Oregon; and harpoon to target swordfish off California and Oregon. Some vessels, especially longliners and purse seiners, fish outside of the EEZ, but may deliver to West Coast ports. Drift gillnets intercept most groundfish, including whiting, spiny dogfish, and yellowtail rockfish. Most landings occur in Washington and Oregon (Table 3.3.3.11), and the top several ports occur in these states (Table 3.3.3.13).

Table 3.3.3.11 Landings and Revenue of HMS by Species and Year

		Year			
Species Type	Data Type	2000	2001	2002	2003
Albacore	Landed weight (lbs)	19,848,814	24,495,425	22,063,692	36,485,624
	Exvessel revenue ($)	17,103,010	20,577,991	14,272,304	24,305,367
Shark	Landed weight (lbs)	547,195	567,274	517,745	491,807
	Exvessel revenue ($)	720,450	670,249	629,727	588,697
Other Tuna	Landed weight (lbs)	1,559,831	1,644,104	78,491	113,077
	Exvessel revenue ($)	900,461	833,464	90,157	100,998
Dorado and Marlin	Landed weight (lbs)	8,946	18,394	C	C
	Exvessel revenue ($)	12,633	13,501	C	C
Swordfish	Landed weight (lbs)	1,252,875	640,799	609,248	980,229
	Exvessel revenue ($)	4,054,296	2,158,192	2,264,288	3,131,158
Total Landed Weight (lbs)		23,217,661	27,365,996	23,269,176*	38,070,737*
Total Exvessel Revenue ($):		22,790,849	24,253,397	17,256,476*	28,126,220*

Source: PacFIN FTL table. July 2004
Note: C represents data restricted due to confidentiality
* totals do not include confidential data

Table 3.3.3.12 HMS Landings and Exvessel Revenue by State, Year, and Major Gear Group

			YEAR			
State	Gear Group	Data Type	2000	2001	2002	2003
CA	Hook and Line	Landed weight (lbs)	2,323,968	2,402,114	4,534,829	2,697,411
		Exvessel revenue ($)	2,741,226	2,334,606	2,945,594	2,741,955
	Net	Landed weight (lbs)	2,902,991	2,802,769	1,090,415	930,255
		Exvessel revenue ($)	3,975,012	2,850,343	2,225,363	1,741,480
	Troll	Landed weight (lbs)	1,964,550	3,907,886	1,364,167	1,360,872
		Exvessel revenue ($)	1,872,012	3,063,523	1,024,421	988,564
OR		Landed weight (lbs)	C	76,513	323,497	C
	Hook and Line	Exvessel revenue ($)	C	41,340	198,261	C
	Net	Landed weight (lbs)	C		C	86,604
		Exvessel revenue ($)	C		C	13,720
	Troll	Landed weight (lbs)	8,755,933	8,948,222	4,036,735	9,039,680
		Exvessel revenue ($)	7,488,326	7,545,405	2,752,640	6,115,181
WA		Landed weight (lbs)	C	C	C	
	Hook and Line	Exvessel revenue ($)	C	C	C	
	Net	Landed weight (lbs)	C			
		Exvessel revenue ($)	C			
	Troll	Landed weight (lbs)	7,020,617	9,145,451	11,776,387	23,792,124
		Exvessel revenue ($)	5,836,813	7,947,279	7,418,555	15,706,940

Source: PacFIN FTL table. July 2004.
Note: C represents data restricted due to confidentiality

Table 3.3.3.13. Top Ports for HMS Landings and Exvessel Revenue (2000 - 2003)

Rank	Top 15 Ports by Weight	Top 15 Ports by Exvessel Revenue
1	ILWACO	ILWACO
2	NEWPORT	NEWPORT
3	WESTPORT	WESTPORT
4	ASTORIA	ASTORIA
5	CHARLESTON (COOS BAY)	SAN DIEGO
6	TERMINAL ISLAND	MORRO BAY
7	EUREKA	SAN PEDRO
8	MORRO BAY	CHARLESTON (COOS BAY)
9	MOSS LANDING	TERMINAL ISLAND
10	BELLINGHAM BAY	EUREKA
11	SAN PEDRO	MOSS LANDING
12	SAN DIEGO	BELLINGHAM BAY
13	OCEANSIDE	SAN FRANCISCO
14	FIELDS LANDING	OCEANSIDE
15	CRESCENT CITY	CRESCENT CITY

Source: PacFIN FTL table. July 2004

Pacific Pink Shrimp Fishery

The Council has no direct management authority over pink shrimp. In 1981, the three coastal states established uniform coastwide regulations for the pink shrimp fishery. The season runs from April 1 through October 31. Regulations authorize pink shrimp commercial harvest only by trawl nets or pots. Trawl gear harvests most of these shrimp off the West Coast from Northern Washington to Central California at depths from 60 fm and 100 fm (110 m to 180 m), with the majority taken off Oregon (Table 3.3.3.14). The ports with highest landings also occur in Oregon, followed by Washington and Oregon ports (Table 3.3.3.15).

Most shrimp trawl gear has a mesh size of one inch to three-eights inches between knots. Shrimp trawl nets are usually constructed with net mesh sizes smaller than the net mesh sizes for legal groundfish trawl gear. Thus, shrimp trawlers commonly catch groundfish, while groundfish trawlers catch little shrimp. In some years the pink shrimp trawl fishery has accounted for a significant share of canary rockfish incidental catch. The Council has discussed methods to control shrimp fishing activities, such as requiring all vessels to use bycatch reduction devices (finfish excluders). In 2002, finfish excluders in the pink shrimp fisheries were mandatory in California, Oregon, and Washington. Many vessels that participate in the shrimp trawl fishery also have groundfish limited entry permits. Vessels participating in the pink shrimp fishery must abide by the same rules as vessels that do not have groundfish limited entry permits. However, all groundfish landed by vessels with limited entry permits are included in the limited entry total.

Table 3.3.3.14 Pink Shrimp Landings and Exvessel Revenue by Year and State (LBS and USD)

		YEAR			
State	Data Type	2000	2001	2002	2003
CA	Landed weight (lbs)	2,459,095	3,612,205	4,116,213	2,147,685
	Exvessel revenue ($)	1,049,119	992,644	1,275,023	657,159
OR	Landed weight (lbs)	25,462,479	28,482,140	41,583,534	20,545,976
	Exvessel revenue ($)	10,192,294	7,560,473	11,352,588	5,051,246
WA	Landed weight (lbs)	4,360,914	6,590,344	10,105,043	7,893,802
	Exvessel revenue ($)	1,700,410	1,713,687	2,745,707	1,959,662
Total Landed Weight (lbs)		32,282,488	38,684,689	55,804,790	30,587,463
Total Exvessel Revenue ($)		12,941,823	10,266,804	15,373,317	7,668,068

Source: PacFIN FTL table. July 2004

Table 3.3.3.15 Top 15 Ports for Pink Shrimp Landings and Exvessel Revenue (2000–2003)

Rank	Top Ports by Weight	Top Ports by Exvessel Revenue
1	ASTORIA	ASTORIA
2	NEWPORT	NEWPORT
3	CHARLESTON (COOS BAY)	CHARLESTON (COOS BAY)
4	WESTPORT	WESTPORT
5	GARIBALDI (TILLAMOOK)	GARIBALDI (TILLAMOOK)
6	EUREKA	EUREKA
7	CRESCENT CITY	CRESCENT CITY
8	BROOKINGS	BROOKINGS
9	ILWACO	ILWACO
10	SOUTH BEND	SOUTH BEND
11	TOKELAND	MORRO BAY
12	MORRO BAY	TOKELAND
13	AVILA	AVILA
14	FIELDS LANDING	FIELDS LANDING
15	MONTEREY	MONTEREY

Source: PacFIN FTL table. July 2004

Ridgeback Prawn Fisheries

The Ridgeback prawn fishery occurs exclusively in California, centered in the Santa Barbara Channel and off Santa Monica Bay. In 1999, 32 boats participated in the ridgeback prawn fishery. Traditionally, a number of boats fish year-round for both ridgeback and spot prawns, targeting ridgeback prawns during the closed season for spot prawns and vice versa. Most boats typically use single-rig trawl gear. Shrimp gear accounts for nearly all prawn landings, although groundfish trawl and other gears take minor amounts (Table 3.3.3.16). The top ports for landed weight and exvessel value occur in the Santa Barbara Channel-Santa Monica Bay region (Table 3.3.3.17). The State of California manages the ridgeback prawn fishery. Similar to spot prawn and pink shrimp fisheries, prawns are an “exempted” fishery in the federal open access groundfish fishery, entitling to groundfish trip limits.

Following a 1981 decline in landings, the California Fish and Game Commission adopted a June through September closure to protect spawning female and juvenile ridgeback prawns. Regulations allow an incidental take of 50 pounds of prawns or 15% by weight during the closed period. During the open prawn season, federal regulations limit finfish landings per trip to a maximum of 1,000 pounds, with no more than 300 pounds of groundfish. A vessel operator may land any amount of sea cucumbers with ridgeback prawns as long as the operator possesses a sea cucumber permit. Other regulations include a prohibition on trawling within state waters, a minimum fishing depth of 25 fm, a minimum mesh size of 1.5 inches for single-walled cod ends or 3 inches for double-walled cod ends and maintaining a logbook (required since 1986).

Table 3.3.3.16. Ridgeback Prawn Landings and Exvessel Revenue by Year (LBS and USD)

		YEAR			
Gear Group	Data Type	2000	2001	2002	2003
Trawl	Landed weight (lbs)	141,160	16,920	19,735	12,454
	Exvessel revenue ($)	165,345	26,976	31,599	14,641
Shrimp Trawl	Landed weight (lbs)	1,414,844	340,024	422,240	486,890
	Exvessel revenue ($)	1,633,636	508,853	606,064	669,274
Other Gears	Landed weight (lbs)	10,172			237
	Exvessel revenue ($)	13,201			641
Total Landed Weight (lbs)		1,566,176	356,944	441,975	499,581
Total Exvessel Revenue ($)		1,812,182	535,829	637,663	684,557

Source: PacFIN FTL table. July 2004

Table 3.3.3.17. Rank of All Ports with Ridgeback Prawn Landings and Exvessel Revenue (2000–2003)

Rank	Rank of Ports by Weight	Rank of Ports by Exvessel Revenue
1	SANTA BARBARA	SANTA BARBARA
2	VENTURA	VENTURA
3	OXNARD	OXNARD
4	TERMINAL ISLAND	TERMINAL ISLAND
5	LONG BEACH	LONG BEACH
6	PLAYA DEL REY	PLAYA DEL REY
7	PORT HUENEME	PORT HUENEME
8	SAN PEDRO	SAN PEDRO
9	MORRO BAY	MORRO BAY
10	AVILA	AVILA
11	SAN SIMEON	SAN SIMEON
12	POINT ARENA	POINT ARENA
13	PRINCETON / HALF MOON BAY	PRINCETON / HALF MOON BAY

Source: PacFIN ftl table. August 2004

Salmon

The ocean commercial salmon fishery, both non-treaty and treaty, is managed by both the states and the federal government. The Council manages fisheries in the EEZ while the states manage fisheries in their waters. All ocean commercial salmon fisheries off the West Coast states use troll gear, and primarily target chinook and coho. Limited pink salmon landings occur in odd-years. A gillnet/tangle net fishery that does not technically occur in Council-managed waters may have some impact on groundfish that migrate through state waters. Commercial coho landings fell precipitously in the early 1990s and remain very low. In response to the listing of many wild salmon stocks under the ESA, the management regime is largely structured around so-called “no jeopardy standards” developed through the ESA-mandated consultation process. Ocean fisheries are managed according to zones reflecting the distribution of salmon stocks and are structured to allow and encourage capture of hatchery-produced stocks while avoiding depressed natural stocks. The Columbia River, on the Oregon/Washington border; the Klamath River in Southern Oregon; and the Sacramento River in Central California support the largest runs of returning salmon.

California accounts for most landings and revenues of salmon caught in the coastal management areas,

followed by Oregon and Washington (Table 3.3.3.18). However, Washington landings in Puget Sound and other non-coastal areas substantially exceed the total coastal landings. Most of the top 10 ports for quantity of landings occur in Washington (Table 3.3.3.19), but the top ports in terms of revenues occur more evenly distributed by state.

The salmon troll fishery has a small incidental catch of Pacific halibut and groundfish, including yellowtail rockfish. The historical data show that salmon troll trips that did not land halibut had a higher range of groundfish landings (11-149 mt) than troll trips that landed halibut (1-19 mt). However, looking at groundfish catch frequency, either by vessel or trips, reveals that groundfish are caught more often by vessels or on trips catching halibut. To account for yellowtail rockfish landed incidentally while not promoting targeting on the species, federal managers have allowed salmon trollers to land up to one pound of yellowtail per two pounds of salmon in 2001, not to exceed 300 pounds per month (north of Cape Mendocino).

Table 3.3.3.19 Salmon Landings and Exvessel Revenue by Area, State, and Year (LBS and USD)

			YEAR			
Area	State	Data type	2000	2001	2002	2003
Coastal Management Areas	CA	Landed weight (lbs)	5,143,030	2,407,615	4,941,537	6,382,942
		Exvessel revenue ($)	10,325,395	4,772,551	7,643,076	12,166,622
	OR	Landed weight (lbs)	1,563,697	2,960,716	3,501,154	3,667,155
		Exvessel revenue ($)	3,069,828	4,736,557	5,388,352	7,198,494
	WA	Landed weight (lbs)	416,030	1,090,350	1,348,292	1,443,320
		Exvessel revenue ($)	566,873	1,096,778	1,313,661	1,594,448
Other Management Areas	OR	Landed weight (lbs)	1,340,819	1,855,600	2,089,757	2,438,378
		Exvessel revenue ($)	961,419	1,125,372	1,543,793	1,586,972
	WA	Landed weight (lbs)	12,750,614	28,791,819	32,904,386	31,122,453
		Exvessel revenue ($)	9,772,895	11,298,116	12,013,803	11,100,583
Total Landed weight (lbs)			21,214,190	37,106,100	44,785,126	45,054,248
Total Exvessel revenue ($)			24,696,410	23,029,373	27,902,685	33,647,119

Source: PacFIN ftl table. August 2004
Note: "Other management areas" includes inside waters such as Puget Sound and Columbia River

Table 3.3.3.20 Top 15 Ports for Salmon Landings and Exvessel Revenue (2000–2003)

Rank	Top 15 Ports by Weight	Top 15 Ports by Exvessel Revenue
1	BELLINGHAM BAY	NEWPORT
2	SEATTLE	FORT BRAGG
3	SHELTON	BELLINGHAM BAY
4	COLUMBIA RIVER PORTS - OREGON	CHARLESTON (COOS BAY)
5	TAHOLAH	BODEGA BAY
6	LACONNER	SAN FRANCISCO
7	NEWPORT	COLUMBIA RIVER PORTS - OREGON
8	EVERETT	SHELTON
9	FORT BRAGG	PRINCETON / HALF MOON BAY
10	TACOMA	SEATTLE
11	BLAINE	MOSS LANDING
12	COPALIS BEACH	TACOMA
13	PORT ANGELES	TAHOLAH
14	BODEGA BAY	PORT ANGELES
15	CHARLESTON (COOS BAY)	BLAINE

Source: PacFIN ftl tables. August 2004

Pacific Halibut

The bilateral (U.S./Canada) IPHC recommends conservation regulations for Pacific halibut, and the governments of Canada and the U.S. implement the regulations in their own waters. The IPHC requires a license to participate in the commercial Pacific halibut fishery in waters off Washington, Oregon, and California (Area 2A). Area 2A licenses, issued for the directed commercial fishery, have decreased from 428 in 1997 to 215 in 2004.The Pacific and North Pacific Fishery Management Councils have responsibility for allocation in Council waters within the IPHC management regime. The Pacific Halibut Catch Sharing Plan (CSP) for Area 2A specifies allocation agreements of the Council, the states of Washington, Oregon, and California, and the Pacific halibut treaty tribes. The CSP specifies recreational and commercial fisheries for Area 2A. The commercial sector has both a treaty and non-treaty components. Regulations limit the directed non-treaty commercial fishery in Area 2A to south of Point Chehalis, Washington, Oregon, and California. Commercial landings have ranged from about 0.5 to 1.0 million pounds (head on dressed weight) and $1.5 to $2.3 million (Table 3.3.3.21). Washington accounts for the majority of the highest-producing ports for landed weight and revenue (Table 3.3.3.22). In the non-treaty commercial sector, the directed halibut fishery receives an allocation of 85% of the harvest and the salmon troll fishery receives 15% to cover incidental catch. The limited entry primary sablefish fishery north of Point Chehalis, Washington (46º 53' 18" N latitude) may retain halibut when the Area 2A total allowable halibut catch (TAC) is above 900,000 pounds. In 2003, the TAC was above this level, and the allocation was 70,000 pounds. Final landings for this fishery in 2003 were 65,325 pounds; 56% (47,946 pounds) of the allocation was harvested.

Table 3.3.3.21 Pacific Halibut Commercial Landings and Exvessel Revenue by Year and Gear (LBS and USD)

		YEAR			
Gear Group	Data Type	2000	2001	2002	2003
Hook and Line	Landed weight (lbs)	519,645	745,500	949,274	807,131
	Exvessel revenue	1,358,462	1,578,914	1,941,603	2,226,31
Troll	Landed weight (lbs)	25,574	37,639	42,811	48,416
	Exvessel revenue	62,210	78,409	81,505	107,640
Total Landed weight		545,219	783,139	992,085	855,547
Total Exvessel Revenue		1,420,671	1,657,323	2,023,108	2,333,98

Source: PacFIN ftl table. August 2004

Table 3.3.3.22 Top 15 Ports for Pacific Halibut Landings and Exvessel Revenue (2000–2003)

Rank	Top 15 Ports by Weight	Top 15 Ports by Exvessel Revenue
1	NEAH BAY	NEAH BAY
2	NEWPORT	NEWPORT
3	PORT ANGELES	PORT ANGELES
4	TAHOLAH	BELLINGHAM BAY
5	BELLINGHAM BAY	TAHOLAH
6	LAPUSH	LAPUSH
7	ASTORIA	ASTORIA
8	WESTPORT	WESTPORT
9	CHARLESTON (COOS BAY)	CHARLESTON (COOS BAY)
10	EVERETT	BLAINE
11	BLAINE	EVERETT
12	FLORENCE	FLORENCE
13	PORT ORFORD	GARIBALDI (TILLAMOOK)
14	GARIBALDI (TILLAMOOK)	CHINOOK
15	CHINOOK	PORT ORFORD

Source: PacFIN ftl table. August 2004

California Halibut

The commercial California halibut fishery extends from Bodega Bay in northern California to San Diego in Southern California, and across the international border into Mexico. California halibut, a state-managed species, is targeted with hook-and-line, setnets and trawl gear, all of which intercept groundfish. Federal

regulations allow fishing with 4.5-inch minimum mesh size trawl in Federal waters, but California regulations prohibit trawling within state waters, except in the designated "California halibut trawl grounds," where a 7.5-inch minimum mesh size must be used during open seasons. Historically, California commercial halibut fishers have preferred setnets because of these restrictions, and predominantly use 8.5-inch mesh and maximum length of 9,000. These nets take most of the landings (Table 3.3.3.23) Setnets are prohibited in certain designated areas, including a Marine Resources Protection Zone (MRPZ), covering state waters (to 3 nm) south of Point Conception and waters around the Channel Islands to 70 fm, but extending seaward no more than one mile. In comparison to trawl and setnet landings, commercial hook-and-line catches are historically insignificant. Over the last decade they have ranged from 11% to 23% of total California halibut landings. Most of those landings were made in the San Francisco Bay area by salmon fishers mooching or trolling slowly over the ocean bottom (Kramer et al. 2001). Overall, the ports with highest California halibut landings occur in central and southern California (Table 3.3.3.24).

Table 3.3.3.23. California Halibut Landings and Exvessel Revenue by Year and Gear (LBS and USD)

		YEAR			
Gear Group	Data type	2000	2001	2002	2003
Hook and Line	Landed weight (lbs)	118,519	124,241	166,307	208,887
	Exvessel revenue ($)	366,478	398,222	523,217	654,537
Misc.	Landed weight (lbs)	C	C	C	C
	Exvessel revenue ($)	C	C	C	C
Net	Landed weight (lbs)	380,105	319,235	255,720	181,439
	Exvessel revenue ($)	1,122,396	981,323	820,973	601,822
Pot	Landed weight (lbs)	463	170	1,501	592
	Exvessel revenue ($)	1,225	531	3,594	2,419
Troll	Landed weight (lbs)	9,163	10,382	8,259	13,735
	Exvessel revenue ($)	21,241	24,687	18,784	29,589
Trawl	Landed weight (lbs)	277,878	377,094	451,186	342,609
	Exvessel revenue ($)	728,537	1,076,334	1,276,334	912,487
Shrimp Trawl	Landed weight (lbs)	63,947	66,634	55,534	77,324
	Exvessel revenue ($)	214,903	226,478	203,011	326,085
Total Landed weight (lbs)		850,075	897,756	938,507	824,586
Total Exvessel revenue ($)		2,454,780	2,707,575	2,845,913	2,526,939

Source: PacFIN ftl table. August 2004:
Note: totals exclude confidential data

Table 3.3.3.24 Top 15 Ports for California Halibut Landings and Exvessel Revenue (2000–2003)

Rank	Top 15 Ports by Weight	Top 15 Ports by Exvessel Revenue
1	SAN FRANCISCO	SAN FRANCISCO
2	PRINCETON / HALF MOON BAY	VENTURA
3	VENTURA	PRINCETON / HALF MOON BAY
4	SANTA BARBARA	SANTA BARBARA
5	SAN PEDRO	TERMINAL ISLAND
6	TERMINAL ISLAND	SAN PEDRO
7	OXNARD	OXNARD
8	MOSS LANDING	PORT HUENEME
9	SANTA CRUZ	OCEANSIDE
10	AVILA	SANTA CRUZ
11	PORT HUENEME	AVILA
12	OCEANSIDE	MOSS LANDING
13	MONTEREY	SAN DIEGO
14	SAN DIEGO	MONTEREY
15	MORRO BAY	MORRO BAY

Source: PacFIN ftl table. August 2004

California Sheephead

Pot fishermen account for well over half of the total catch and revenues of Sheephead (Table 3.3.3.25), followed by hook and line gear. Nets and other gears take minimal amounts of Sheephead. The top 15 ports in California have a similar order of landed weight and revenue (Table 3.3.3.26)

Table 3.3.3.25 Landings and Exvessel Revenue of California Sheephead by State, Gear, and Year (LBS and USD)

			YEAR			
State	Gear	Data type	2000	2001	2002	2003
California	Hook and Line	Landed weight (lbs)	33,211	23,928	22,698	24,587
		Exvessel revenue ($)	93,186	73,996	66,304	82,449
	Other Gears	Landed weight (lbs)	1,506	1,268	1,199	2,677
		Exvessel revenue ($)	4,663	2,860	4,100	10,131
	Net	Landed weight (lbs)	3,067	3,097	1,432	474
		Exvessel revenue ($)	5,897	3,401	1,388	1,317
	Pot	Landed weight (lbs)	136,161	121,941	95,719	79,618
		Exvessel revenue ($)	490,773	437,409	339,741	292,673
Total Landed weight (lbs)			173,945	150,234	121,048	107,356
Total Exvessel revenue ($)			594,519	517,666	411,532	386,570

Source: PacFIN ftl table. August 2004

Table. 3.3.3.26 Ports for Sheephead Landings and Exvessel Revenue (2000–2003)

Rank	Top 15 Ports by Weight	Top 15 Ports by Exvessel Revenue
1	OXNARD	OXNARD
2	SAN DIEGO	SAN DIEGO
3	SANTA BARBARA	TERMINAL ISLAND
4	TERMINAL ISLAND	SANTA BARBARA
5	NEWPORT BEACH	NEWPORT BEACH
6	VENTURA	MISSION BAY
7	MISSION BAY	VENTURA
8	OCEANSIDE	OCEANSIDE
9	DANA POINT	DANA POINT
10	SAN PEDRO	SAN PEDRO
11	POINT LOMA	POINT LOMA
12	LONG BEACH	LONG BEACH
13	MORRO BAY	PLAYA DEL REY
14	PLAYA DEL REY	REDONDO BEACH
15	REDONDO BEACH	MORRO BAY

Source: PacFIN ftl table. August 2004

Coastal Pelagic Species

The CPS fisheries are concentrated in California (Table 3.3.3.27), but CPS fishing also occurs in Washington and Oregon. Vessels using round haul gear (purse seines and lampara nets) account for 99% of total CPS landings and revenues per year (Table 3.3.3.28). In Washington, the Emerging Commercial Fishery regulations provides for the sardine fishery as a trial commercial fishery. The trial fishery targets sardines, but also lands anchovy, mackerel, and squid. Regulations limit the fishery to vessels using purse seine gear; prohibits fishing inside of three miles, and requires logbooks. Eleven of the 45 permits holders participated in the fishery in 2000, landing 4,791 mt of sardines (Robinson 2000). Three vessels accounted for 88% of the landings. Of these, two fished out of Ilwaco and one out of Westport. Oregon manages the sardine fishery under the Development Fishery Program under annually-issued permits, which have ranged from 15 in 1999 and 2000 to 20 in 2001. Landings, almost all by purse seine vessels, have rapidly increased in Oregon: from 776 mt in 1999 to 12,798 mt in 2001. The Southern California round haul fleet is the most important sector of the CPS fishery in terms of landings, and most of the highest production ports occur in this area (Table 3.3.3.29). This fleet is primarily based in Los Angeles Harbor, along with fewer vessels in the Monterey and Ventura areas. The fishery harvests Pacific bonito, market squid, and tunas as well as CPS. The fleet consists of about 40 active purse

seiners averaging 20 m in length. Approximately one-third of this fleet are steel-hull boats built during the last 20 years, the remainder are wooden-hulled vessels built from 1930 to 1949, during the boom of the Pacific sardine fleet. Because stock sizes of these species can radically change in response to ocean conditions, the CPS FMP takes a flexible management approach. Pacific mackerel and Pacific sardine are actively managed through annual harvest guidelines based on periodic assessments. Northern anchovy, jack mackerel, and market squid are monitored through commercial catch data. If appropriate, one third of the harvest guideline is allocated to Washington, Oregon, and northern California (north of 35E40' N latitude) and two-thirds is allocated to Southern California (south of 35E40' N latitude). An open access CPS fishery is in place north of 39°N latitude and a limited entry fishery is in place south of 39° N latitude. The Council does not set harvest guidelines for anchovy, jack mackerel, or market squid (PFMC 1998).

Table 3.3.3.27 CPS Landings and Exvessel Revenue by Area, State, and Year (LBS and USD)

			YEAR			
Area	State	Data type	2000	2001	2002	2003
Coastal Management Areas	CA	Landed weight (lbs)	465,666,430	376,633,573	316,754,663	182,994,919
		Exvessel revenue ($)	40,179,911	29,373,729	27,852,840	29,261,203
	OR	Landed weight (lbs)	21,629,154	29,337,380	50,396,664	56,500,887
		Exvessel revenue ($)	1,173,218	1,726,387	2,835,693	3,016,660
	WA	Landed weight (lbs)	10,937,156	25,573,818	35,995,417	26,872,582
		Exvessel revenue ($)	716,632	1,394,002	2,044,254	1,546,569
Other Management Areas	OR	Landed weight (lbs)	C	C	C	C
		Exvessel revenue ($)	C	C	C	C
	WA	Landed weight (lbs)	530,364	813,484	1,196,872	1,070,620
		Exvessel revenue ($)	208,419	297,702	529,434	510,373
Total Landed weight (lbs)			498,763,104	432,358,255	404,343,616	267,439,00
Total Exvessel revenue ($)			42,278,180	32,791,820	33,262,222	34,334,805

Source: PacFIN ftl table. August 2004
Note: C represents data restricted due to confidentiality
Totals do not include confidential data
"Other management areas" includes inside waters such as Puget Sound and Columbia River

Table 3.3.3.28 CPS Landings and Exvessel Revenue by Year and Gear(LBS and USD)

		YEAR			
Gear Group	Data type	2000	2001	2002	2003
Hook and Line	Landed weight (lbs)	447,269	132,292	46,697	135,851
	Exvessel revenue ($)	64,810	63,396	30,017	53,557
Misc	Landed weight (lbs)	238,310	53,720	90,661	141,291
	Exvessel revenue ($)	82,093	390,882	621,647	463,864
Net	Landed weight (lbs)	496,714,839	430,478,604	404,186,770	266,878,952
	Exvessel revenue ($)	42,035,766	32,142,853	32,605,922	33,761,365
Pot	Landed weight (lbs)	100,375	1,240	347	57,592
	Exvessel revenue ($)	10,194	398	126	15,534
Troll	Landed weight (lbs)	645,533	307,434	558	43,777
	Exvessel revenue ($)	57,140	11,811	666	15,701
Trawl	Landed weight (lbs)	626,541	1,384,594	21,999	181,009
	Exvessel revenue ($)	28,150	182,129	2,734	24,105
Shrimp Trawl	Landed weight (lbs)	1,086	371	1,255	536
	Exvessel revenue ($)	569	351	1,577	678
Total Landed weight (lbs)		498,773,953	432,358,255	404,348,287	267,439,008
Total Exvessel revenue ($)		42,278,722	32,791,820	33,262,689	34,334,805

Source: PacFIN ftl table. August 2004

Table. 3.3.3.29 Top 15 Ports for CPS Landings and Exvessel Revenue (2000–2003)

Rank	Top 15 Ports by Weight	Top 15 Ports by Exvessel Revenue
1	SAN PEDRO	SAN PEDRO
2	PORT HUENEME	PORT HUENEME
3	TERMINAL ISLAND	MOSS LANDING
4	MOSS LANDING	TERMINAL ISLAND
5	ASTORIA	VENTURA
6	VENTURA	ASTORIA
7	ILWACO	SAN FRANCISCO
8	MONTEREY	MONTEREY
9	SAN FRANCISCO	ILWACO
10	WESTPORT	SAUSALITO
11	SAUSALITO	PRINCETON / HALF MOON BAY
12	PRINCETON / HALF MOON BAY	WESTPORT
13	SANTA BARBARA	TACOMA
14	LONG BEACH	MARSHALL
15	MARSHALL	SANTA BARBARA

Source: PacFIN ftl table. August 2004

Sea Cucumber

California implemented a permit program for sea cucumber in 1992. In 1997 the state established separate, limited entry permits for the dive and trawl sectors. Permit rules encourage permit transfer to the dive sector which has lead to growth in this sector. The dive sector currently accounts for 80% of landings. There are currently 113 sea cucumber dive permits and 36 sea cucumber trawl permits. Many commercial sea urchin and/or abalone divers also hold sea cucumber permits and began targeting sea cucumbers more heavily beginning in 1997. At up to $20 per pound wholesale for processed sea cucumbers, there is a strong incentive to participate in this fishery. California fishers account for the majority of sea cucumbers by weight and value, followed by Washington fishers (Table 3.3.3.30); Oregon has too few participants for public release of data.

Sea cucumbers are managed by the states. Along the West Coast, sea cucumbers are harvested by diving or trawling (Table 3.3.3.31). Only the trawl fishery for sea cucumbers lands an incidental catch of

groundfish. The warty sea cucumber is fished almost exclusively by divers. The California sea cucumber is caught principally by trawling in Southern California, but is targeted by divers in Northern California. The top ports for landed weight and ex-vessel revenue occur roughly equally in California and Washington (Table 3.3.3.32).

Sea cucumber fisheries have expanded worldwide. On the West Coast, a dive fishery for warty sea cucumbers occurs in Baja California, Mexico, and dive fisheries for California sea cucumbers occur in Washington, Oregon, Alaska, and British Columbia, Canada (Rogers-Bennett and Ono 2001). In Washington, the sea cucumber fishery only occurs inside Puget Sound and the Straight of Juan de Fuca. Most of the harvest is taken by diving, although the tribes can also trawl for sea cucumbers in these waters.

Table 3.3.3.30 Sea Cucumber Landings and Exvessel Revenue by Area, State, and Year (LBS and USD)

			YEAR			
Area	State	Data type	2000	2001	2002	2003
Coastal Management Areas	CA	Landed weight (lbs)	643,310	717,695	946,810	758,569
		Exvessel revenue ($)	606,578	584,970	801,276	687,854
	OR	Landed weight (lbs)	C	C	C	C
		Exvessel revenue ($)	C	C	C	C
Other Management Areas	WA	Landed weight (lbs)	605,755	661,657	549,127	438,707
		Exvessel revenue ($)	836,720	903,570	598,820	560,533
Total Landed weight (lbs)			1,249,065	1,379,352	1,495,937	1,197,276
Total Exvessel revenue ($)			1,443,297	1,488,540	1,400,096	1,248,387

Source: PacFIN ftl table. August 2004
Note: C represents data restricted due to confidentiality
"Other management areas" includes inside waters such as Puget Sound and Columbia River

Table 3.3.3.31 Sea Cucumber Landings and Exvessel Revenue by Year and Gear (LBS and USD)

		YEAR			
Gear aggregation	Data type	2000	2001	2002	2003
Misc. (including dive gear)	Landed weight (lbs)	574,689	465,804	660,598	466,855
	Exvessel revenue ($)	558,029	419,318	610,742	475,262
Other Gears	Landed weight (lbs)	674,667	913,583	835,339	731,109
	Exvessel revenue ($)	885,777	1,069,291	789,354	774,084
Total Landed weight (lbs)		1,249,065	1,379,352	1,495,937	1,197,276
Total Exvessel revenue ($)		1,443,297	1,488,540	1,400,096	1,248,387

Source: PacFIN ftl table. August 2004
Note: C represents data restricted due to confidentiality
"Other management areas" includes inside waters such as Puget Sound and Columbia River
totals are equivalent to previous table to protect confidentiality

Table 3.3.3.32 Top 15 Ports for Sea Cucumber Landings and Exvessel Revenue (2000–2003)

Rank	Top 15 Ports by Weight	Top 15 Ports by Exvessel Revenue
1	OXNARD	OXNARD
2	SANTA BARBARA	BLAINE
3	BLAINE	ANACORTES
4	ANACORTES	SANTA BARBARA
5	TERMINAL ISLAND	TERMINAL ISLAND
6	POULSBO	BELLINGHAM BAY
7	BELLINGHAM BAY	POULSBO
8	SEATTLE	SEATTLE
9	TACOMA	TACOMA
10	VENTURA	LACONNER
11	LACONNER	VENTURA
12	PUGET ISLAND	PUGET ISLAND
13	FRIDAY HARBOR	FRIDAY HARBOR
14	SAN PEDRO	SAN PEDRO
15	MISSION BAY	PORT TOWNSEND

Source: PacFIN ftl table. August 2004

Spot Prawn

Spot prawns are targeted with both trawl and pot gear (Table 3.3.3.33). These fisheries are state-managed. For the purposes of managing incidentally-caught groundfish, the trawl fishery has been categorized as exempted trawl in the open access sector of the groundfish fishery. California has the largest and oldest trawl fishery with about 54 vessels operating from Bodega Bay south to the U.S./Mexico border. California has the top 15 ports for landed weight and ex-vessel revenue (Table 3.3.3.34). (Most vessels operate out of Monterey, Morro Bay, Santa Barbara, and Ventura, although some Washington-based vessels participate in this fishery during the fall and winter.) Standard gear is a single-rig shrimp trawl with roller gear, varying in size from eight-inch disks to 28-inch tires. Washington State phased out its trawl fishery by converting its trawl permits to pot/trap permits in 2003. California instituted area and season closures for the trawl fleet in 1984 to protect spot prawns during their peak egg-bearing months of November through January. In 1994, the trawl area and season closure was expanded to include the entire Southern California Bight. As of 2003, the spot prawn trawl fishery is closed. After 2003 Oregon prohibited the use of trawl nets for harvesting spot prawns. These closures, along with the development of ridgeback prawn, sea cucumber, and other fisheries, and also greater demand for fresh fish, have kept spot prawn trawl landings low and facilitated growth of the trap fishery. The trap fishery began in 1985 with a live prawn segment developing subsequently. The fleet operates from Monterey Bay, where six boats are based, to Southern California, where a 30 to 40 boat fleet results in higher production. Fishers in both fishing areas set traps at depths of 600 feet to 1,000 feet along submarine canyons or along shelf breaks. Between 1985 and 1991 trapping accounted for 75% of statewide landings; trawling accounted for the remaining 25% (Larson 2001). Landings continued to increase through 1998, when they reached a historic high of 780,000 pounds. Growth in participation and a subsequent drop in landings led to the development of a limited entry program, which is still in the process of being implemented. Other recent regulations include closures, trap limits, bycatch reduction measures for the trawl fishery, and an observer program.

Table 3.3.3.33 Spot Prawn Landings and Exvessel Revenue by Year and Gear in California (LBS and USD)

		Year			
Gear	Data type	2000	2001	2002	2003
Pot	Landed weight (lbs)	180,339	218,813	175,497	159,168
	Exvessel revenue ($)	1,646,474	1,993,004	1,607,681	1,505,684
Trawl (all trawl types)	Landed weight (lbs)	266,682	203,346	218,067	6,841
	Exvessel revenue ($)	2,188,968	1,709,452	1,759,197	61,364
Total Landed weight (lbs)		447,021	422,159	393,564	166,009
Total Exvessel Revenue ($)		3,835,442	3,702,456	3,366,877	1,567,049

Source: PacFIN ftl table. August 2004

Note: Spot prawn landings do not show up specifically in landed catch data for WA and OR

Table 3.3.3.34 Top 15 Ports for Spot Prawn Landings and Exvessel Revenue in California (2000–2003)

Rank	Top 15 Ports by Weight	Top 15 Ports by Exvessel Revenue
1	MORRO BAY	MORRO BAY
2	MONTEREY	MONTEREY
3	OXNARD	OXNARD
4	VENTURA	VENTURA
5	DANA POINT	DANA POINT
6	TERMINAL ISLAND	TERMINAL ISLAND
7	SANTA BARBARA	OCEANSIDE
8	OCEANSIDE	SANTA BARBARA
9	SAN DIEGO	MOSS LANDING
10	RICHMOND	SAN DIEGO
11	MOSS LANDING	RICHMOND
12	SAN FRANCISCO	SAN FRANCISCO
13	FORT BRAGG	FORT BRAGG
14	BODEGA BAY	BODEGA BAY
15	HUNTINGTON BEACH	MISSION BAY

Source: PacFIN ftl table. August 2004

Buyers and Processors

Excluding Pacific whiting delivered to at-sea processors, vessels participating in Pacific groundfish fisheries deliver to shore-based processors within Washington, Oregon, and California. Buyers are located along the entire coast; however, processing capacity has been consolidating in recent years. Several companies have left the West Coast or have chosen to quit the business entirely, have been consoloidated or are inactive. This has led to trucking groundfish from certain ports to another community for processing. Therefore, landings do not necessarily indicate processing activity in those communities. However, examination of the species composition of landed catch by state can lead to inferences of some processor characteristics.

According to PacFIN data, in 2002 Oregon had the largest amount of groundfish landings (56%), followed by Washington (28%), and California (16%). In contrast, Oregon has the largest amount of exvessel revenue (40%), followed by California (32%) and Washington (22%), respectively. Oregon accounts for the majority of Pacific whiting landings, which creates a large difference between the percentage of landed catch and exvessel revenue because Pacific whiting has a relatively low price per pound. The relatively high amount of Pacific whiting being landed in Oregon may create a case where many processors must generate capacity to handle large quantities at a time. Groundfish processors in Washington may receive landings from Alaska fisheries. Depending on the amount of catch Washington processors can draw from Alaska fisheries, some groundfish processors may require the capacity to process large amounts of product. California processors concentrating on West Coast fisheries may focus on relatively smaller throughput of groundfish.

The seafood distribution chain begins with deliveries by the harvesters (exvessel landings) to the shoreside networks of buyers and processors, and includes the linkage between buyers and processors and seafood markets. In addition to shoreside activities, processing of certain species (e.g., Pacific whiting) also occurs offshore on factory ships. Several thousand entities have permits to buy fish on the West Coast (Table 3.3.3.38). Of these, 1,780 purchased fish caught in the ocean area and landed on Washington, Oregon, or California state fishtickets in the year 2000 (excluding tribal catch) and 732 purchased groundfish (PFMC 2004).[1]

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[1]/ A "buyer" was defined here by a unique combination of PacFIN port code and state buyer code on the fishticket. For California, a single company may have several buying codes that vary only by the last two digits. In PacFIN, these last two digits are truncated, and so were treated as separate buying units only if they appear for different ports.

According to PacFIN data, the number of unique companies buying groundfish along the West Coast has declined in recent years. This trend coincides with recent regulatory restrictions and diminished landings of higher valued species such as rockfish (Table 3.3.3.38). The number of buyers purchasing other species such as crab and salmon has been stable or increasing in recent years.

Table 3.3.3.38 Count of Fish Buyers by Year, Species Type, and State (not unique records)

		Year			
State	Species Group	2000	2001	2002	2003
CA	Coastal Pelagic	174	126	118	112
	All Crab	298	306	291	351
	Groundfish	412	385	324	310
	HMS	233	241	222	199
	Other species	558	515	510	505
	All Salmon	277	225	269	273
	All Shell fish	6	10	2	2
	All Shrimp & Prawns	154	126	129	107
OR	Coastal Pelagic	14	15	16	16
	All Crab	67	77	81	83
	Groundfish	84	74	79	81
	HMS	96	112	125	138
	Other species	90	91	103	94
	All Salmon	104	134	143	150
	All Shell fish	19	14	46	27
	All Shrimp & Prawns	36	36	30	26
WA	Coastal Pelagic	12	17	16	15
	All Crab	125	125	158	168
	Groundfish	43	42	40	45
	HMS	37	39	55	53
	Other species	109	102	98	106
	All Salmon	189	218	219	213
	All Shell fish	167	178	177	171
	All Shrimp & Prawns	75	72	72	80

Source: PacFIN ftl and ft tables. July 2004
Note: records are not unique buyers and should not be summed

Fishing Communities

Fishing communities, as defined in the MSA, include not only the people who catch the fish, but also those who share a common dependency on directly related fisheries-dependent services and industries. Commercial fishing communities may include boatyards, fish handlers, processors, and ice suppliers. Similarly, entities that depend on recreational fishing may include tackle shops, small marinas, lodging facilities catering to out-of-town anglers, and tourism bureaus advertising charter fishing opportunities. People employed in fishery management and enforcement makes up another component of fishing communities.

Fishing communities on the West Coast depend on commercial and/or recreational fisheries for many species. Participants in these fisheries employ a variety of fishing gears and combinations of gears. Community patterns of fishery participation vary coastwide and seasonally, based on species availability, the regulatory environment, and oceanographic and weather conditions. Communities are characterized by the mix of fishery operations, fishing areas, habitat types, seasonal patterns, and target species. Although unique, communities share many similarities. For example, all face danger, safety issues, dwindling resources, and a multitude of state and federal regulations. Individuals in unique communities have differing cultural heritages and economic characteristics. Examples include a Vietnamese fishing community of San Francisco Bay and an Italian fishing community in Southern California. Native U.S. communities with an interest in the groundfish fisheries are also considered. In spite of a variety of ethnic backgrounds, fishers in many areas come together to form the fishing communities, drawn together by their common interests in economic and physical survival in an uncertain and changing ocean and regulatory environment. The top 15 ports for open access groundfish and revenue are found in Table 3.3.3.39.

Table 3.3.3.39 Top Ports for Open Access Groundfish Landings and Revenue (2000 - 2003)

Rank	Top 15 Ports for Landed Revenue	Top 15 Ports for Landed Weight

1	Morro Bay	Moss Landing
2	Port Orford	Neah Bay
3	Moss Landing	Fort Bragg
4	Fort Bragg	Port Orford
5	Gold Beach	Port Angeles
6	Avila	Morro Bay
7	Santa Barbara	Gold Beach
8	Port Angeles	Westport
9	Crescent City	Eureka
10	Neah Bay	Crescent City
11	San Francisco	Astoria
12	Monterey	San Francisco
13	Astoria	Avila
14	Eureka	Charleston (Coos Bay)
15	Westport	Brookings

Source: PacFIN VSMRFD files. July 2004

An overview of West Coast fishing communities organized around regions comprising port groups and ports consistent with the organization of fish landings data in the PacFIN database can be found in the The Pacific Coast Groundfish Fishery Management Plan, Essential Fish Habitat Designation and Minimization of Adverse Impacts, Draft EIS, prepared in February 2005.

Enforcement

Scarce State and Federal resources also limit the use of traditional enforcement methods. Traditional fishery monitoring techniques include air and surface craft surveillance, declaration requirements, landing inspections, and analysis of catch records and logbooks. Current assets for patrolling offshore areas include helicopter and fixed wing aircraft deployed by the U.S. Coast Guard and state enforcement entities, one large 210 foot Coast Guard cutter, and smaller Coast Guard and state enforcement vessels. Only the aircraft and large cutter are suitable for patrolling the more distant offshore closed areas. The availability of Coast Guard assets may be challenged by other missions such as Homeland Security and search and rescue

Shoreside enforcement activities complement at-sea monitoring and declaration requirements by inspecting recreational and commercial vessels for compliance with landing limits, gear restrictions, and seasonal fishery closures. State agencies are increasingly using dockside sampling as a means of assessing groundfish catch in recreational fisheries, which when combined with state and federal enforcement patrols at boat launches and marinas, provides a means of ensuring compliance with bag limits and fishery closures. Commercial landings are routinely investigated upon landing or delivering to buying stations or processing plants and can be tracked through fish ticket and logbook records.